SERVICE MANUAL   BG-1L CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.	MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-J29MF1	RM-873	Thailand	SCC-K76D-A				
KV-J29MN2	RM-873	Thailand	SCC-K76B-A				
KV-J29SN21	RM-873	New Zealand	SCC-K89A-A				
KV-J29SZ2	RM-873	Australia	SCC-K86B-A				
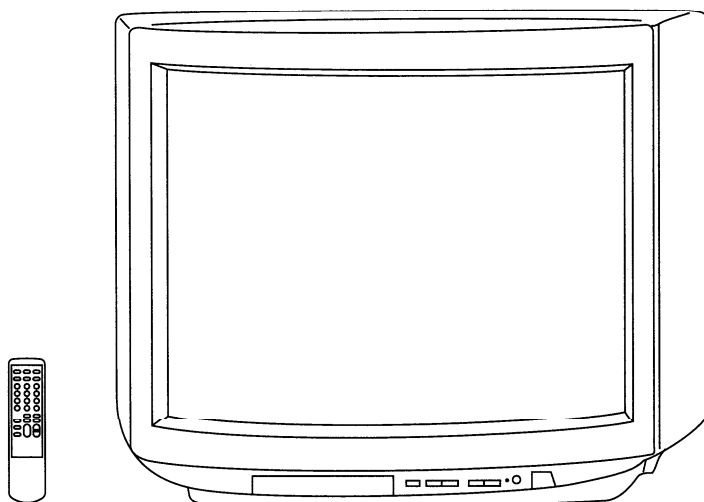
TRINITRON ® COLOR TV
SONY®

SPECIFICATIONS

		Note
Power requirements	110-240 V AC, 50/60 Hz	
Power consumption (W)	Indicated on the rear of TV	
Television system	B/G, I, D/K, M	KV-J29MF1/J29MN2
	B/G	KV-J29SN21/J29SZ2
Color system	PAL, PAL 60, SECAM, NTSC4.43, NTSC3.58	KV-J29MF1/J29MN2
	PAL, PAL 60, NTSC4.43, NTSC3.58 (AV IN)	KV-J29SN21/J29SZ2
Stereo system	NICAM Stereo B/G, I; A2 Stereo (German) B/G	KV-J29MN2/J29SN21
	A2 Stereo (German) B/G	KV-J29SZ2
Teletext language	English, German, Swedish, Italian, French, Spanish	KV-J29SN21 only
Channel coverage B/G	VHF: E2 to E12 / UHF: E21 to E69 / CATV: S01 to S03, S1 to S41	
I	UHF: B21 to B68 / CATV: S01 to S03, S1 to S41	KV-J29MF1/J29MN2 only
D/K	VHF: C1 to C12, R1 to R12 / UHF: C13 to C57, R21 to R60 CATV: Z1 to Z39, S01 to S03, S1 to S41	KV-J29MF1/J29MN2 only
M	VHF: A2 to A13 / UHF: A14 to A79 / CATV: A-8 to A-2, A to W+4, W+6 to W+84	KV-J29MF1/J29MN2 only
Antenna	75-ohm external antenna terminal for VHF/UHF	
Audio output (speaker)	5W × 2 + 15W (3D WOOFER)	KV-J29MN2/J29SN21/J29SZ2
	6W × 6W	KV-J29MF1
Number of terminal Video	Input: 3 Output: 1	Phono jacks; 1 Vp-p, 75 ohms
Audio	Input: 3 Output: 1	Phono jacks; 500 mVrms

S-Video	Input: 1	Y : 1 Vp-p, 75 ohms,
		  unbalanced, sync
		  negative
		C : 0.286 Vp-p, 75 ohms

Headphone	Output: 1	Minijack
3D WOOFER	Output: 1	KV-J29MN2/J29SN21/J29SZ2
Picture tube	29 inch (Super Trinitron Plus)	
Tube size (cm)	72	Measured diagonally
Screen size (cm)	68	Measured diagonally
Dimension (w/h/d, mm)	780 × 601 × 542	KV-J29MN2/J29SN21/J29SZ2
	780 × 577 × 542	KV-J29MF1
Mass (kg)	46	KV-J29MN2/J29SN21/J29SZ2
	43	KV-J29MF1
Accessories Supplied	Remote commander (1) Size R6 (AA) battery (2)	
Optional	TV stand (SU-E29G)	
	TELETEXT ADAPTOR OPK-T300G	KV-J29SZ2 only

Design and specifications are subject to change without notice.

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

TABLE OF CONTENTS

Getting Started

Connections

Connecting the 3D WOOFER
■ *Except for KV-J29MF1*

1 Attach the 3D WOOFER into the footholds on the top of the TV.

2 Connect the wires to the 3D WOOFER (8Ω) terminals at the rear of the TV.
The red wire should be connected to the ⊕ red terminal and the black wire to the ⊖ black terminal.

3D WOOFER

1

2   − +
Black wire
Red wire

Notes
• Connect only the supplied 3D WOOFER; otherwise the TV may malfunction.
• Unplug the TV from the wall outlet when connecting the 3D WOOFER.
• Make sure that none of the 3D WOOFER wire strands stick out, making contact with the neighbouring speaker terminal, to prevent a malfunction caused by a short circuit of the terminals.

Connecting a VHF antenna or a combination VHF/UHF antenna
— 75-ohm coaxial cable (round)

Attach an optional IEC antenna connector to the 75-ohm coaxial cable.
Plug the connector into the ᵀᵣ (antenna) socket at the rear of the TV.

Rear of TV   Rear of TV   On a wall

or

SECTION 1
GENERAL

> The operating instructions mentioned here are partial abstracts from the Operating Instructions Manual. The page numbers of the Operating Instruction Manual remain as in this manual.
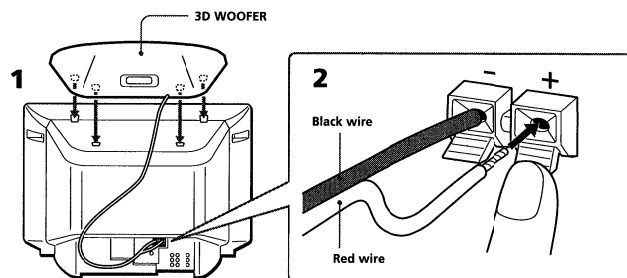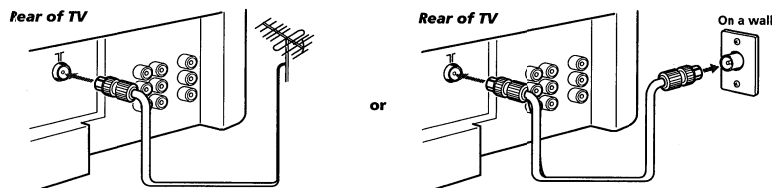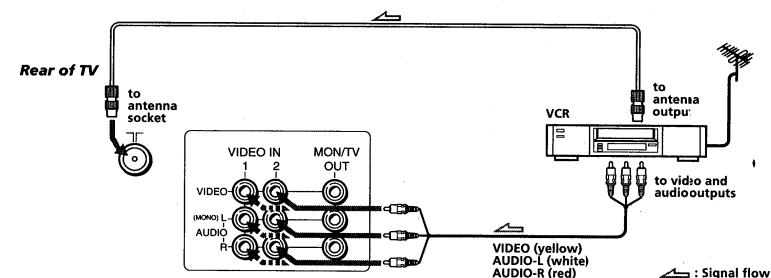
Connecting optional equipment

You can connect optional audio/video equipment to your TV such as a VCR, multi disc player, camcorder, video game, or stereo system.

Connecting video equipment using video input jacks

Rear of TV
to antenna socket
VIDEO IN MON/TV OUT
1 2
VIDEO
(MONO) L
AUDIO R
to antenna output
VCR
to video and audio outputs
VIDEO (yellow)
AUDIO-L (white)
AUDIO-R (red)
◢ : Signal flow

Front of TV

VIDEO 3 INPUT
S VIDEO VIDEO (MONO) L−AUDIO−R
Camcorder
to video and audio outputs
to S video output
◢ : Signal flow
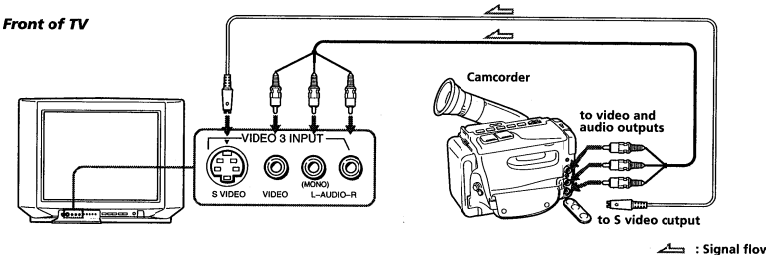
When connecting a monaural VCR
Connect the yellow plug to VIDEO and the black plug to AUDIO-L (MONO).

When connecting a VCR to the ᵀᵣ (antenna) terminal
Preset the signal output from the VCR to the program position 0.

If both S Video and video signals are input simultaneously
The S Video input signal is selected. To view a video input signal, disconnect the S Video connection.

Note on the video input
When no signal is input, the screen becomes blue.

Connecting audio/video equipment using MON/TV OUT jacks

Rear of TV
to antenna socket
VIDEO IN MON/TV OUT
1 2
VIDEO
(MONO) L
AUDIO R
to antenna output
VCR
or
Audio system
to video and audio inputs
to audio inputs
VIDEO (yellow)
AUDIO-L (white)
AUDIO-R (red)
◢ : Signal flow
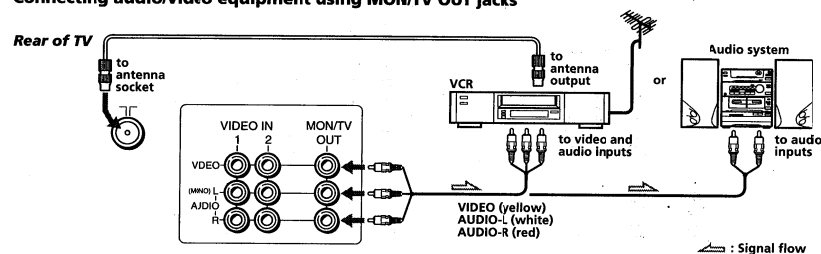
Introducing the menus

You can preset TV channels, adjust the picture and sound qualities, and select some settings using the on-screen menus. You can use the buttons on both the remote commander and the TV to operate the menus.

A/V CONTROL

```
A/V CONTROL ⊃
▶DYNAMIC
 STANDARD
 SOFT
 PERSONAL
  VIDEO ADJUST
  AUDIO ADJUST
  TILT CORRECT:    0
```

```
VIDEO ADJUST ⊃
▶PICTURE ▮▮▮▮▮▮ 100
 COLOR   ▮▮▮▮▮  45
 BRIGHT  ▮▮▮▮   40
 HUE     ▮▮▮▮▮  00
 SHARP   ▮▮▮▮▮  80
 VM: HIGH
 ○○→▦
```

```
AUDIO ADJUST ⊃
▶BASS    ▮▮▮▮▮  80
 TREBLE  ▮▮▮▮▮  80
 BALANCE ▮▮▮▮▮  00
 3D WOOFER : ON


 ○○→▦
```

FEATURES

```
FEATURES ⊃
▶SURROUND:
      OFF
 AV OUT:
    MONITOR

 ○○→▦
```

PRESET

```
PRESET ⊃
▶LANGUAGE/语言:
         ENGLISH
 AUTO PROGRAM
 MANUAL PROGRAM
 TV SYS: B/G
 COL SYS: AUTO
 SKIP: PR02 OFF
```

```
AUTO PROGRAM
 PR:01
 TV SYS  B/G
 VHF LOW
 ▮▮▮▮▮▮·········
```

```
MANUAL PROGRAM ⊃
▶PR:01
 TV SYS: B/G
 VHF LOW
 ▮▮▮▮▮▮·········
 ○○→▦
```

Getting back to the previous menu (except for AUTO PROGRAM)

Press + or – to move the cursor (▶) to the first line (⊃) of each menu, and press ENTER.

Cancelling the menu screen

Press MENU.

### Notes (except for AUTO PROGRAM)

- When a menu is selected after pressing ENTER, the color of both the menu and the menu symbol change and the cursor (▶) appears beside the first item of the menu.
- When an item on the menu is selected after pressing ENTER, the color of the item changes.
- You can refer to the guide (○○→▦) at the bottom of the menus (except for the A/V CONTROL and PRESET menus) for the basic operations of the menu.
- If more than approximately 60 seconds elapse after you press a button, the menu screen disappears automatically.

Changing the menu language

If you prefer Chinese to English, you can change the menu language. You can use buttons on the remote commander or the TV.

1 Press POWER to turn on the TV.

POWER

2 Press MENU.

MENU

```
A/V CONTROL ⊃
DYNAMIC
STANDARD
SOFT
PERSONAL
 VIDEO ADJUST
 AUDIO ADJUST
```

3 Press + or – to move the cursor (▶) to the PRESET menu (🕮), and press ENTER.

+ / – ENTER

```
PRESET ⊃
▶LANGUAGE/语言:
         ENGLISH
 AUTO PROGRAM
 MANUAL PROGRAM
 TV SYS: B/G
 COL SYS: AUTO
 SKIP: PR02 OFF
```

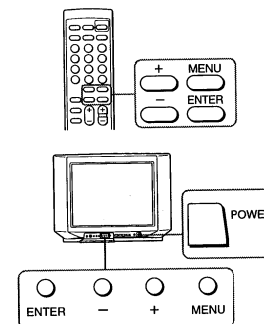**4** Make sure the cursor (▶) appears beside LANGUAGE/ 语言, and press ENTER.

5 Press + or – to select 中文, and press ENTER.

+ / – ENTER

```
预设
▶LANGUAGE/语言:
          中文
自动调台
手动调台
电视系统：B,G
彩色制式：自动
跳越频道：PI02 关
```
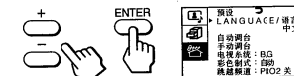
All of the menus change to Chinese.

6 Press MENU to return to the normal screen.

MENU

Presetting channels

You can preset TV channels easily by storing all the receivable channels automatically. You can also preset channels manually or disable program positions (see page 11).

Presetting channels automatically

You can preset up to 100 TV channels in numerical sequence from the program position 1. You can preset channels automatically using the button on the TV or the menu.

1 Press POWER to turn on the TV.

2 Press AUTO PROGR.

The TV starts scanning and presetting channels automatically. When all of the receivable channels are stored, the first preset TV program appears on the screen.

To preset channels automatically using the menu

1 Press MENU.

2 Press + or – to move the cursor (▶) to the PRESET menu (🖾), and press ENTER.
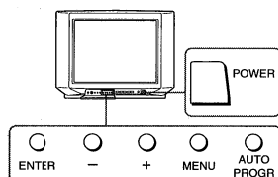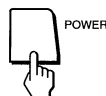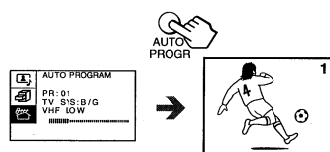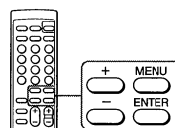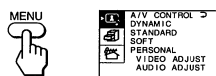
3 Press + or – to move the cursor (▶) to AUTO PROGRAM, and press ENTER.
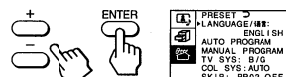
Presetting channels manually

To change the program position for a channel or to receive a channel with a weak signal which you cannot receive by automatic presetting, preset the channel manually.
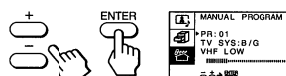
1 Press MENU.

2 Press + or – to move the cursor (▶) to the PRESET menu (🖾), and press ENTER.

3 Select your local TV system.
(1) Press + or – to move the cursor (▶) to TV SYS, and press ENTER.
(2) Press + or – until your local TV system appears on the menu, and press ENTER.

4 Press + or – to move the cursor (▶) to MANUAL PROGRAM, and press ENTER.

5 Select the program position to which you want to preset a channel.
(1) Make sure the cursor (▶) appears beside PR, and press ENTER.
(2) Press + or – until the program position you want appears on the menu, and press ENTER.

6 Select the desired channel.
(1) Press + or – to move the cursor (▶) to VHF LOW, and press ENTER.
(2) Press + or – until the desired channel picture appears on the TV screen, and press ENTER.

7 Press MENU to return to the normal screen.

If the TV system is not properly selected
The picture color may be poor and / or the sound may be noisy. In this case, select the appropriate TV system.

1 Press PROGR +/– or the number buttons to select the program position.
2 Display the PRESET menu.
3 Press + or – to move the cursor (▶) to TV SYS, and press ENTER.
4 Press + or – until the appropriate TV system appears, and press ENTER.

Notes
• The TV system setting is memorized for each program position.
• If you do not know your local TV system, consult your nearest Sony dealer or authorized service center.

Disabling program positions

By disabling unused or unwanted program positions, you can skip those positions when you press PROGR +/–.

1 Press MENU.

2 Press + or – to move the cursor (▶) to the PRESET menu (🖾), and press ENTER.

3 Press + or – to move the cursor (▶) to SKIP, and press ENTER.

4 Press + or – until the unused or unwanted program position appears on the menu, and press ENTER.

5 Press + or – to select ON, and press ENTER.
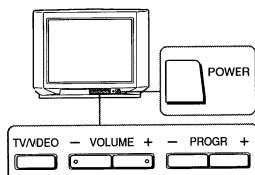
6 To disable other program positions, repeat steps 4 and 5.
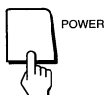
7 Press MENU to return to the normal screen.

To cancel the skip setting
1 Display the PRESET menu.
2 Press + or – to move the cursor (▶) to SKIP, and press ENTER.
3 Press + or – until the program position you want to cancel the skip setting appears, and press ENTER.
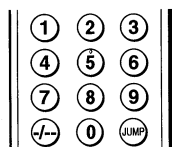4 Press + or – to select OFF, and press ENTER

Watching the TV

1 **Press POWER to turn on the TV.**

POWER

When the TV is turned on in the standby mode after pressing POWER on the TV, press POWER on the remote commander.

2 **Select the TV program you want to watch.**

To select a program position directly
Press the number button.

To select a two-digit program position, press "-/--" before the number buttons.
For example: to select program position 25, press "-/--," then "2" and "5."

To scan through program positions
Press PROGR +/- on the remote commander or the TV until the program position you want appears.
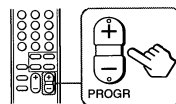
3 **Press VOL +/- on the remote commander or VOLUME +/- on the TV to adjust the volume.**
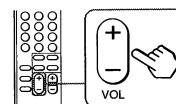
Turning off the TV

To turn off the TV temporarily
Press POWER on the remote commander. The standby indicator lights up.
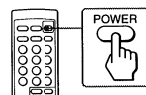
To turn off the TV completely
Press POWER on the TV.
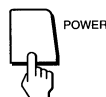
Watching the video input

Press VIDEO/HOLD on the remote commander or TV/VIDEO on the TV.
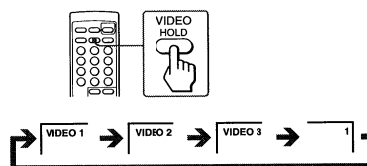
To watch TV
Press TV on the remote commander or TV/VIDEO on the TV.
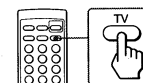
Switching back quickly to the previous channel

Press JUMP.
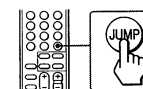
Muting the sound

Press MUTING.
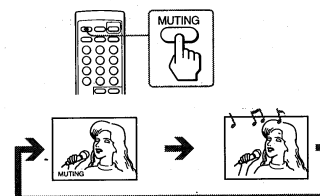
Displaying the on-screen information

Press DISPLAY/REVEAL.
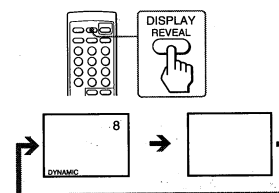
Note
• The on-screen display shows the program position or the video mode and the picture and sound information. The on-screen display for the picture and sound information disappear after being displayed for approximately three seconds.

Setting the Wake Up Timer

You can set the TV to turn on automatically after the period of time you want.

1 **Press WAKE UP/INDEX repeatedly to set the timer.**
The on-screen display appears

WAKE UP TIMER:10M
After 10 minutes

WAKE UP TIMER:OFF
No Wake Up Timer

WAKE UP TIMER:12H00M
After 12 hours
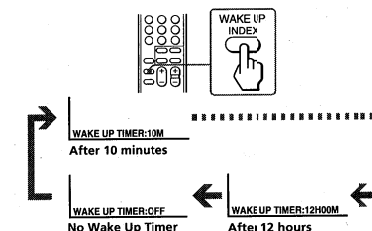
2 **If you want a particular TV program or video mode to be displayed using the Wake Up Timer, select the TV program or video mode.**

3 **Press POWER on the remote commander or set the Sleep Timer to turn off the TV in the standby mode.**
The WAKE UP indicator lights up in amber color.

To cancel the Wake Up Timer, press WAKE UP/INDEX repeatedly until "WAKE UP TIMER: OFF" appears, or turn off the main power of the TV.

Notes
• The Wake Up Timer starts immediatey after the on-screen display disappears.
• The last TV program position or video mode just before the TV turns into the standby mode will appear when the TV s turned on using the Wake Up Timer.
• If no buttons or controls are pressed for more than two hours after the TV is turned on using the Wake Up Timer, the TV automatically turns into the standby mode. If you want to continue watching the TV, press any button or control on the TV or remote commander.

Setting the Sleep Timer

You can set the TV to turn off automatically after the period of time you want.

Press SLEEP

| SLEEP TIMER:30M | → | SLEEP TIMER:60M |
| After 30 minutes | | After 60 minutes |

←

| SLEEP TIMER:OFF | | SLEEP TIMER:90M |
| No Sleep Timer | | After 90 minutes |
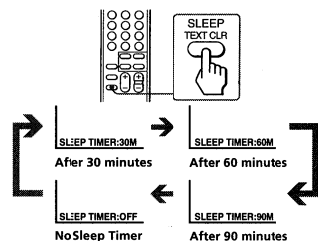
To cancel the Sleep Timer, press SLEEP repeatedly until "SLEEP TIMER: OFF" appears, or turn the TV off.

Adjusting the picture and sound

Selecting the picture and sound modes
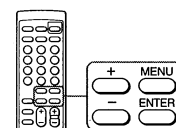
1 Press MENU.
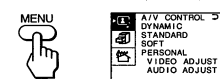
2 Make sure the cursor (▶) appears in the A/V CONTROL menu (⊞), and press ENTER.

3 Press + or – to move the cursor (▶) to DYNAMIC, STANDARD, SOFT, or PERSONAL, and press ENTER.
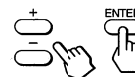
Select	To
DYNAMIC	Receive high contrast picture with powerful sound.
STANDARD	Receive normal contrast picture with medium listening sound.
SOFT	Receive mild picture with soft sound.
PERSONAL	Receive the last picture and sound settings that are adjusted using VIDEO ADJUST and AUDIO ADJUST.

4 Press MENU to return to the normal screen.

Adjusting the picture settings (VIDEO ADJUST)

You can adjust the picture settings to suit your taste with the VIDEO ADJUST option. The adjusted settings are stored in the PERSONAL option.
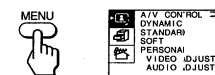
1 Press MENU.

2 Make sure the cursor (▶) appears in the A/V CONTROL menu (⊞), and press ENTER.

3 Press + or – to move the cursor (▶) to VIDEO ADJUST, and press ENTER.
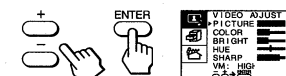
4 Press + or – to move the cursor (▶) to the item you want to adjust, and press ENTER.

5 Press + or – to adjust the selected item, and press ENTER.

For details on each item, see "Description of adjustable items" below.

6 To adjust other items, repeat steps 4 and 5.

7 Press MENU to return to the normal screen.

Description of adjustable items

Item	Press –	Press +
PICTURE	Decrease picture contrast.	Increase picture contrast.
COLOR	Decrease color intensity.	Increase color intensity.
BRIGHT	Darken the picture.	Brighten the picture.
HUE	Make picture tones become reddish.	Make picture tones become greenish.
SHARP	Soften the picture.	Sharpen the picture.
VM	Decrease emphasis on picture edges.	Increase emphasis on picture edges.

Note
• You can adjust HUE for the NTSC color system only.

If the picture is slightly snowy

You may try to improve the picture by changing the VM setting as described below:

1 Display the VIDEO ADJUST menu.
2 Press + or – to move the cursor (►) to VM, and press ENTER.
3 Press + or – to select LOW, and press ENTER.

If the picture color is abnormal when receiving programs through the ⊤⊤ (antenna) terminal

Change the color system or the TV system from the PRESET menu as described below until the color becomes normal.

1 Display the PRESET menu.
2 Press + or – to move the cursor (►) to COL SYS or TV SYS, and press ENTER.
3 Press + or – to change the color system or the TV system until the color becomes normal, and press ENTER.

Note
▸ Normally set the color system (COL SYS) to AUTO.

Adjusting the sound settings [AUDIO ADJUST]

You can adjust the sound settings to suit your taste with the AUDIO ADJUST option. The adjusted settings are stored in the PERSONAL option.

1 Press MENU.

2 Make sure the cursor (►) appears in the A/V CONTROL menu (⬛), and press ENTER.

3 Press + or – to move the cursor (►) to AUDIO ADJUST, and press ENTER.

4 Press + or – to move the cursor (►) to the item you want to adjust, and press ENTER.

5 Press + or – to adjust the selected item, and press ENTER.

For details on each item see "Description of adjustable items" below.

6 To adjust other items, repeat steps 4 and 5.

7 Press MENU to return to the normal screen.
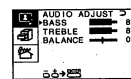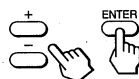
Description of adjustable items

Item	Press –	Press +
BASS	Decrease the bass sound.	Increase the bass sound.
TREBLE	Decrease the treble sound.	Increase the treble sound.
BALANCE	Increase the left speaker's volume	Increase the right speaker's volume.

If the sound is distorted or noisy when receiving programs through the ⊤⊤ (antenna) terminal

Change the TV system from the PRESET menu as described below until the sound becomes normal.

1 Display the PRESET menu.
2 Press + or – to move the cursor (►) to TV SYS, and press ENTER.
3 Press + or – to change the TV system until the sound becomes normal, and press ENTER.

Listening to the woofer sound (3D WOOFER)

■ *Except for KV-J29MF1*

The 3D WOOFER enhances bold, dynamic and clear sounds that spread over a large area and lets you enjoy the thrills, horrors, and suspense of movies or music. The initial setting of the 3D WOOFER is **ON**, and it is ready for your listening when you turn on the TV.
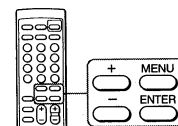

To turn off the woofer sound

1 Press MENU.

2 Make sure the cursor (►) appears in the A/V CONTROL menu (⬛), and press ENTER.

3 Press + or – to move the cursor (►) to AUDIO ADJUST, and press ENTER.
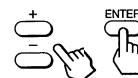
4 Press + or – to move the cursor (►) to 3D WOOFER, and press ENTER.

5 Press + or – to select OFF, and press ENTER.

6 Press MENU to return to the normal screen.

Notes
• To listen to the woofer sound, make sure that the 3D WOOFER is properly connected to the TV (see page 6).
• You can also disconnect the 3D WOOFER from the TV to turn off the woofer sound.

Listening to the surround sound (SURROUND)

The SURROUND feature enables you to enjoy a surround sound effect that is like being in a large hall or live concert when receiving stereo signals.
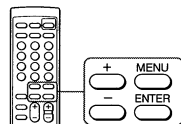
1 Press MENU.

2 Press + or – to move the cursor (▶) to the FEATURES menu (🔳) , and press ENTER.
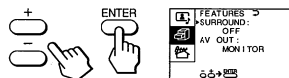
3 Make sure the cursor (▶) appears beside SURROUND, and press ENTER.

4 Press + or – to select HALL(SRS), LIVE(SRS), or SPACE and press ENTER.

```
  ┌──→ HALL(SRS) ───────→ LIVE(SRS) ──┐
  │                                    │
  └──────── OFF ◄──────── SPACE ◄──────┘
```
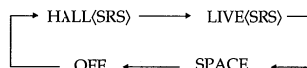
For details on each item, see "Description of adjustable items" below.

5 Press MENU to return to the normal screen.

Description of adjustable items

Select	To
HALL(SRS)	Listen to a sound that spreads out over a large area.
LIVE(SRS)	Listen to the sound that gives the feeling of being at a live concert.
SPACE	Listen to a monaural sound that gives a stereo-like effect.
OFF	Turn off the surround sound.

Note
- The (●) ⊚ SRS (SOUND RETRIEVAL SYSTEM) is manufactured by Sony Corporation under license from SRS Labs, Inc. It is covered by U.S. Patent No. 4,748,669. The word "SRS" and the SRS symbol (●) are registered trademarks of SRS Labs, Inc.

Selecting a stereo or bilingual program

■ *Except for KV-J29MF1*

You can enjoy stereo sound or bilingual programs of both NICAM and A2 (German) stereo systems (for KV-J29MN2/J29SN21) and A2 (German) stereo system (for KV-J29SZ2).

Press A/B/ENLARGE repeatedly until you receive the sound you want.
The on-screen display changes corresponding to the selected sound, and the STANDBY/STEREO/WAKE UP indicator also lights up.
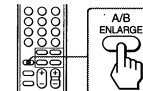
■ *KV-J29MN2/J29SN21*

When receiving a NICAM program

Broadcasting	On-screen display (Selected sound)
NICAM stereo	NICAM (Stereo sound) → MONO (Regular sound)
NICAM bilingual	NICAM MAIN (Main sound) → NICAM SUB (Sub sound) → MONO (Regular sound)
NICAM monaural	NICAM MAIN (Main sound) → MONO (Regular sound)
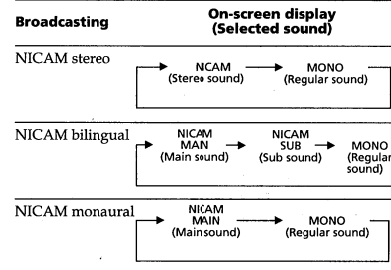
When receiving an A2 (German) program

Broadcasting	On-screen display (Selected sound)
A2 (German) stereo	STEREO (Stereo sound)
A2 (German) bilingual	MAN (Main sound) → SUB (Sub sound)
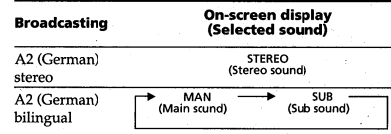
Receiving area for NICAM and A2 (German) programs

System	Receiving area
NICAM	Hong Kong, Singapore, New Zealand, etc.
A2 (German)	Australia, Malaysia, Thailand, etc.

Notes
- If the signal is very weak, the sound becomes monaural automatically.
  KV-J29MN2/J29SN21 only
- If the stereo sound is noisy when receiving a NICAM program, select "MONO." The sound becomes monaural, however, the noise will be reduced.

– 10 –

Viewing Teletext

■ *KV-J29SN21 only*

TV stations broadcast an information service called Teletext via a TV channel.
Teletext service allows you to receive various information such as market shares, weather forecasts or news at any time.
For the KV-J29SZ2 model, you need the Teletext adaptor OPK-T300G (not supplied) to view the Teletext broadcast. You can request your nearest authorized service center or dealer to install the Teletext adaptor into your TV.

DISPLAY/REVEAL
TEXT — VIDEO/HOLD
TV
Number
A/B/ENLARGE — Red
Green
Blue
Yellow
WAKE UP/INDEX — PROGR +/-
SLEEP/TEXT CLR
SONY
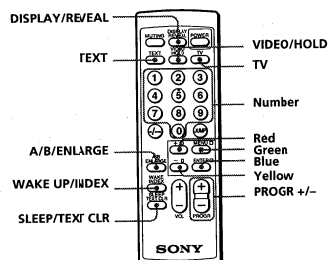
Displaying Teletext

1 Select a TV channel that carries the Teletext broadcast you want to watch.

2 Press TEXT to display the Teletext.
A Teletext page (normally the index page) is displayed. If there is no Teletext broadcast, "100" is displayed at the top left corner of the screen.

To turn off Teletext
Press TV.

Superimposing a Teletext page on the TV picture

Press TEXT.
Each time you press TEXT, the screen changes as follows:

┌→ Teletext →Teletext and TV → TV┐
└────────────────────────────────┘
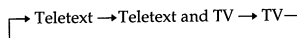
Checking the contents of a Teletext service (INDEX)

Press WAKE UP/INDEX to display an overview of the Teletext contents and page numbers.

Using FASTEXT

This feature allows you to quickly access a Teletext page that uses FASTEXT. When a FASTEXT program is broadcasted, the colored menus appear at the bottom of the screen. The colors of the menus correspond to the red (+), green (MENU), yellow (–), and blue (ENTER) color-coded buttons on the remote commander.

To access a FASTEXT menu
Press the color-coded button on the remote commander that corresponds to the colored menu which appears at the bottom of the screen.
The menu page appears on the screen after several seconds.

Selecting a Teletext page

Press the number buttons to enter the three-digit page number of the Teletext page you want.
If you make a mistake, re-enter the correct page number.

To access the next or previous page
Press PROGR +/-.

You can also access a Teletext page of any page numbers that appear in the colored column at the bottom of the screen using the corresponding color-coded button on the remote commander.

Holding a Teletext page (HOLD)

A Teletext page may consist of several subpages. You can stop the page scrolling in order to read the text at your own pace.

Press VIDEO/HOLD.
The HOLD symbol "⊞" appears at the top left corner of the screen.

To resume normal Teletext operation
Press VIDEO/HOLD again or TEXT.

Revealing concealed information (REVEAL)

The REVEAL option lets you disclose concealed information, such as an answer to a quiz that you find on some of the Teletext pages.

Press DISPLAY/REVEAL.

To conceal the information
Press DISPLAY/REVEAL again.

Enlarging the Teletext display (ENLARGE)

Press A/B/ENLARGE.
Each time you press A/B/ENLARGE, the Teletext display changes as follows:

┌→ Enlarge upper half → Enlarge lower half ┐
└──────────Normal size ←───────────────────┘
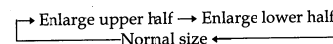
Waiting for a Teletext page while watching a TV program (TEXT CLEAR)

1 Key in the page number of the Teletext that you want to watch, then press SLEEP/TEXT CLR.

2 When the page number is displayed on the screen, press TEXT to turn on the Teletext.

Customizing the TV

Using the AV OUT (advanced rec-out) terminal

You can select the output signal from the MON/TV OUT jacks at the rear of the TV. However, the signal of the Teletext broadcast cannot be output even though MONITOR is selected (for KV-J29SN21 only).

1 Press MENU.

MENU

A/V CONTROL
DYNAMIC
STANDARD
SOFT
PERSONAL
VIDEO ADJUST
AUDIO ADJUST

2 Press + or – to move the cursor (▶) to the FEATURES menu (🔊), and press ENTER.

\+ ENTER
–

FEATURES
SURROUND:
OFF
AV OUT:
MONITOR
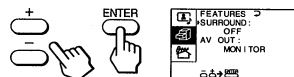
3 Press + or – to move the cursor (▶) to AV OUT, and press ENTER.

4 Press + or – to select the output signal, and press ENTER.

Select	To
TV	Output the signal of the TV broadcast.
MONITOR	Output the signal of the picture you are watching as a main picture.

Note
• Do not change the channel while recording with a VCR through the MON/TV OUT jacks. If you change the channel, it also changes the channel you are recording.

Adjusting the picture tilt

You can adjust the picture tilt if it is not aligned to the TV screen. This may happen due to the direction of the earth's magnetic fields in relation to the TV position.

1 Press MENU.
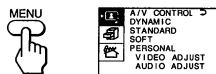
MENU

A/V CONTROL
DYNAMIC
STANDARD
SOFT
PERSONAL
VIDEO ADJUST
AUDIO ADJUST

2 Make sure the cursor (▶) appears in the A/V CONTROL menu (🔊), and press ENTER.

3 Press + or – to move the cursor (▶) to TILT CORRECT, and press ENTER.

4 Press + or – to select the most suitable value to adjust the picture tilt, and press ENTER.
TILT CORRECT:

–5 ← –4 ← –3 ← –2 ← –1 ← 0 → +1 → +2 → +3 → +4 → +5
Press –   Press +

Troubleshooting

If you have any problems, read this manual again and check the countermeasure for each of the symptoms listed below.
If the problem persists after trying the methods below, contact your nearest Sony dealer or authorized service center.

**Snowy picture
Noisy sound**
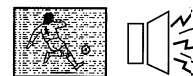
➡ Check the antenna.
➡ Check the antenna connection on the TV and on the wall.
➡ Check the TV system (TV SYS) setting.

Dotted lines or stripes

➡ This may be caused by local interference (e.g. cars, neon signs, hair dryers, etc.). Adjust the antenna for minimum interference.

Double images or "ghosts"

➡ This may be caused by reflections from nearby mountains or buildings. A highly directional antenna may improve the picture.

**Good picture
Noisy sound**
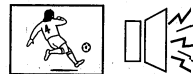
➡ Check the TV system (TV SYS) setting.

**No picture
No sound**

➡ Press POWER.
➡ Press POWER to turn off the TV for about five seconds and then turn it on again.
➡ Check the power cord connection.
➡ Check the antenna connection.
➡ Check the VCR connections.

**Good picture
No sound**
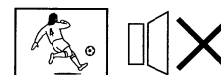
➡ Press VOL +.
➡ Press MUTING.
➡ Press A/B/ENLARGE

No color

➡ Adjust the COLOR level in the VIDEO ADJUST menu of the PERSONAL option.
➡ Check the color system (COL SYS) setting.

**No sound from 3D WOOFER
(except for KV-J29MF1)**

➡ Check the connection of the 3D WOOFER.
➡ Check that the setting of the 3D WOOFER is ON in the AUDIO ADJUST menu.

TV cabinet creaks

➡ Even if the picture or the sound is normal, changes in the room temperature sometimes make the TV cabinet expand or contract, making a noise. This does not indicate a malfunction.

SECTION 2
DISASSEMBLY

2-1. 3D SPEAKER BOX REMOVAL

① 3D Speaker box
[KV-J29MN2]
[KV-J29SN21]
[KV-J29SZ2]

– **+**

Red wire

Black wire

2-2. REAR COVER REMOVAL

② Rear cover

① Two screws
(+BVTP 4×16)

① Six screws
(+BVTP 4×16)

① Two screws
(+BVTP 4×16)

2-3. SPEAKER REMOVAL

① Two screws (Washer head)
(+BVTP 4×16)

② Bracket (L/R) assy, sp
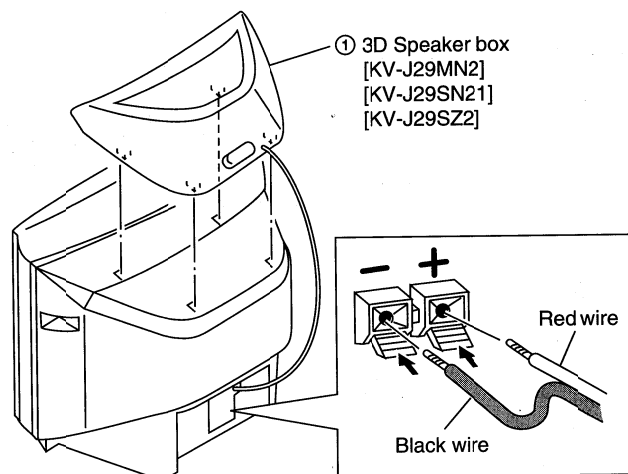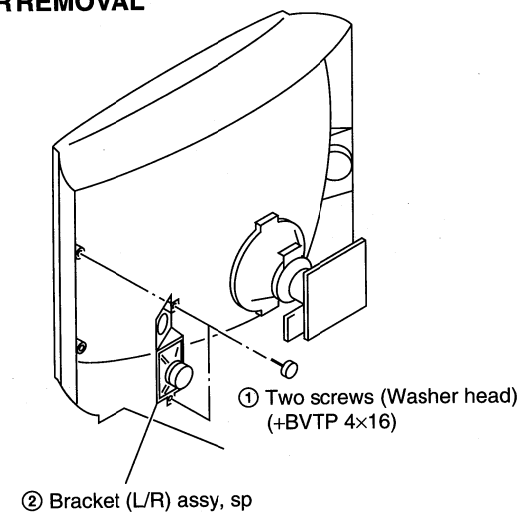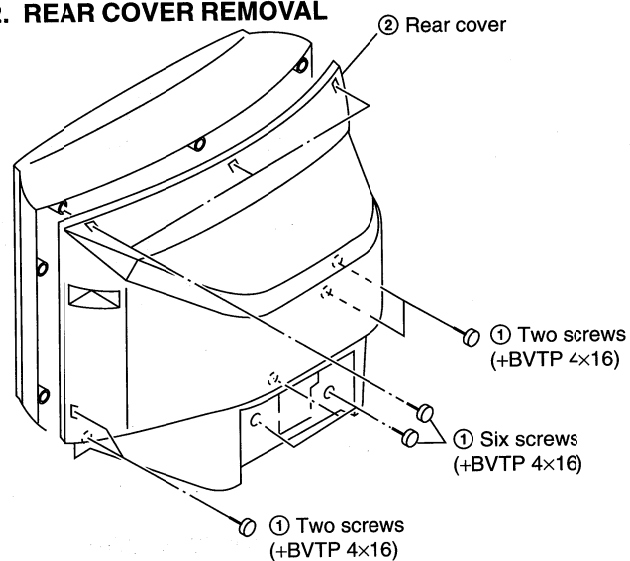
2-4. CHASSIS ASSY REMOVAL

② Chassis assy

① Two claws

2-5. SERVICE POSITION

② Attach the PCB holder Assy to the C2 Board.

① Disconnect the PCB holder from the main bracket.

③ Turn and stand the main bracket.
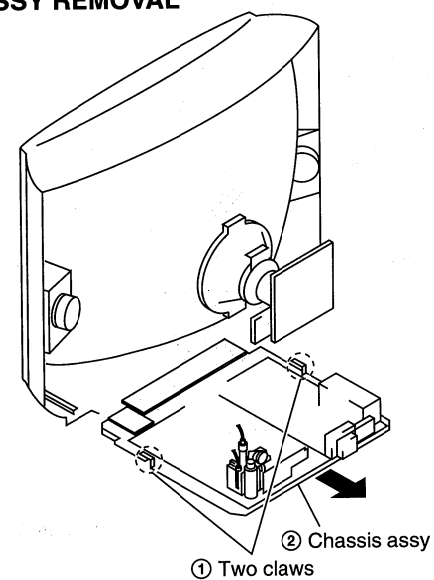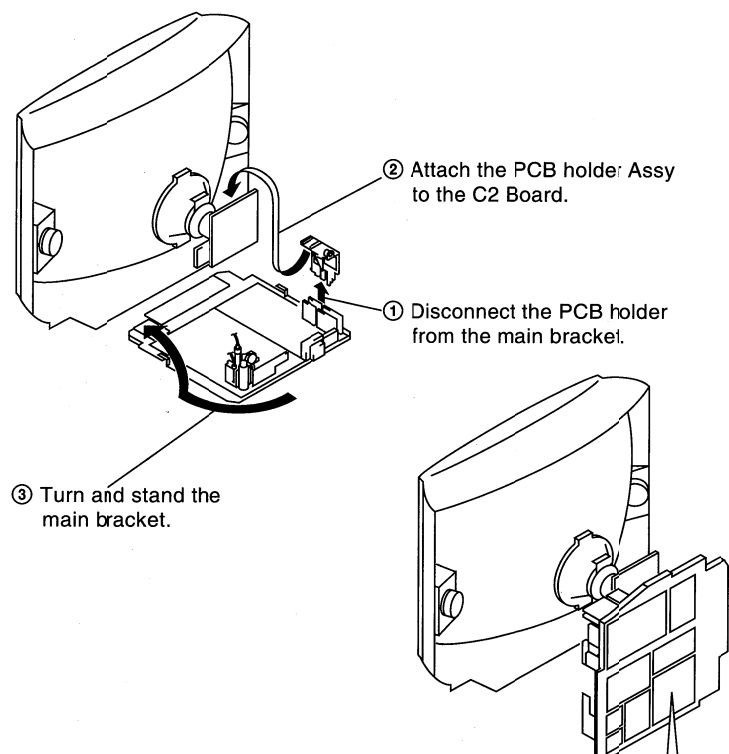
• When measuring the power supply voltage, just remove part of the main bracket as shown below.

① Cut the four marked sections with cutters to remove part of the main bracket.

ATTENTION

② For safety reason this plate must be remounted after cutting and taking away.

• **SAFETY REQUIREMENT**

② Two screws
(+BVTP 3×8)
(7-685-646-71)

2-6. V1 BOARD REMOVAL

② PCB holder Assy

① One claw

③ V1 Board
[KV-J29SN21]

④ S Board

V1 Board

Extension Board
(3-702-716-01)

• Prepare the above extension board
(3-702-716-01) for adjust.

2-7. K BOARD REMOVAL

① Two connector

② K Board
[KV-J29MN2]
[KV-J29SN21]
[KV-J29SZ2]

2-8. K1 BOARD REMOVAL

③ K1 Board
[KV-J29MN2]
[KV-J29SN21]
[KV-J29SZ2]

① Connector

A3 Board
[KV-J29MN2]
[KV-J29SN21]
[KV-J29SZ2]

② Two screws
(+BVTP 3×12)

2-9. A AND D BOARDS REMOVAL

② Five screws
(+BVTP 3×12)

⑤ Two screws
(+BVTP 3×12)

① Four connectors

⑦ D board

④ A Board

③ Three claws

⑥ Four claws

2-10. F1 AND H3 BOARDS REMOVAL

⑤ connector

④ Two Flat cables

⑧ H3 Board

⑥ connector

③ F1 Board

① Two connectors

② Two claws

⑦ Three claws
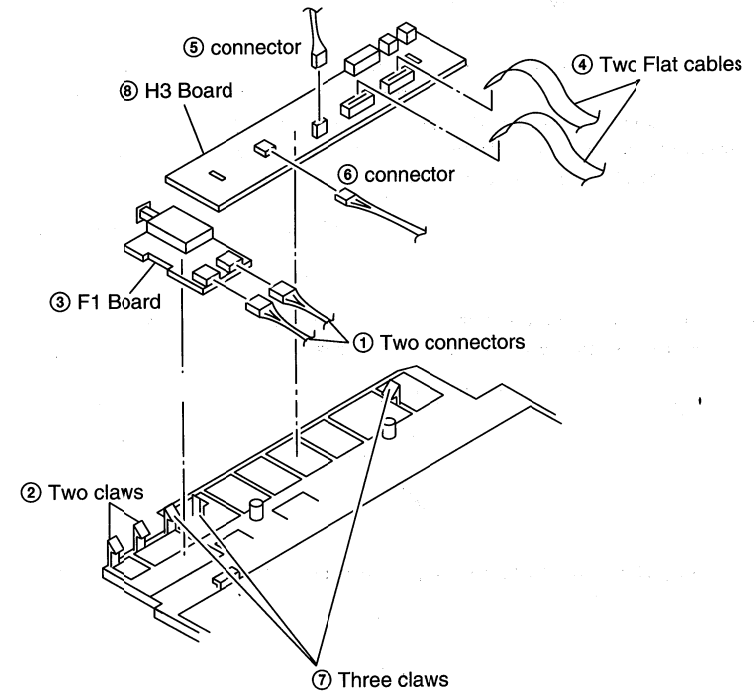
2-11. PICTURE TUBE REMOVAL

⑩ Two DGC band

⑥ C1 Board
⑨ Two DGC holder

⑪ Two DGC clip

⑪ Two DGC clip

⑦ Neck assy
⑫ DGC

⑫ DGC

⑤ Chassis assy

⑧ Deflection yoke
⑬ Tension spring

④ Anode cap

① Two screws
(washer head)
(+BVTP 4×16)

② Speaker
bracket(L)assy

③ Speaker (5cm)

⑭ Two screws
(Tapping)

⑭ Two screws
(Tapping)

① Two screws
(washer head)
(+BVTP 4×16)

⑮ Picture tube

② Speaker
bracket(R)assy

Cushion

③ Speaker (5cm)
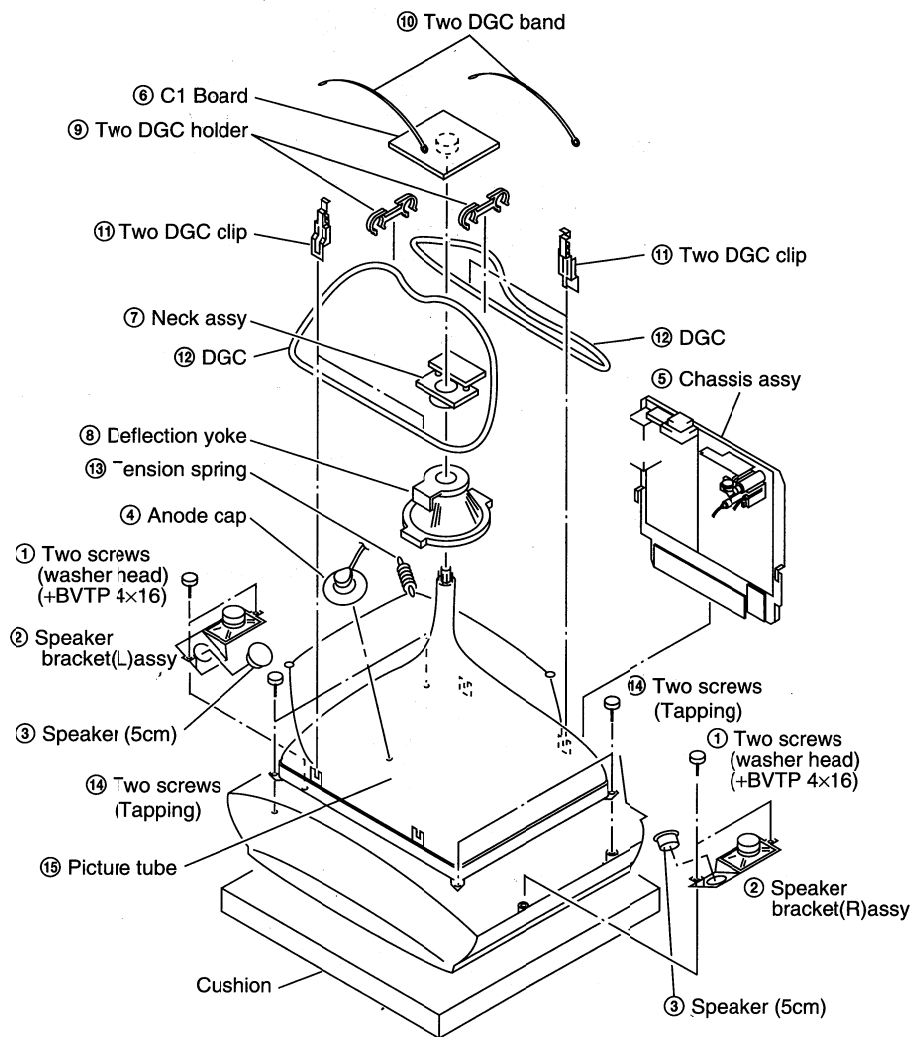
● REMOVAL OF ANODE-CAP

NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT, after removing the anode.

● REMOVING PROCEDURES
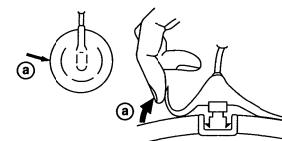
① **Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ**
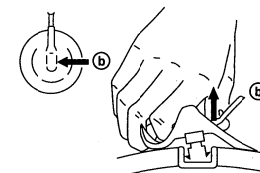
② **Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.**
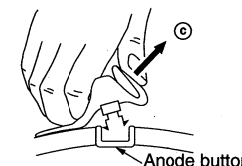
Anode button

③ **When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ.**

● HOW TO HANDLE AN ANODE-CAP

① **Do not damage the surface of anode-caps with sharp shaped objects.**
② **Do not press the rubber too hard so as not to damage the inside of anode-cap.**
   A metal fitting called the shatter-hook terminal is built into the rubber.
③ **Do not turn the foot of rubber over too hard.**
   The shatter-hook terminal will stick out or damage the rubber.
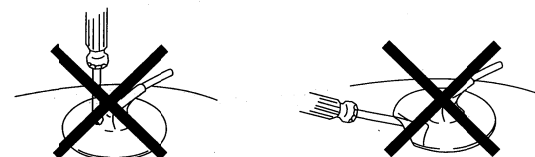
SECTION 3

SELF DIAGNOSIS FUNCTION

When turning on the TV, a self diagnosis function is executed.

If no acknowledgement is returned from a device which is turned "ON", the device has a problem.

In this case, one of the LED's responding to the problem device will flicker a defined number of times.

The flickering frequency responding to each failed device is shown below.

Board name	A Board	A Board	A Board	A Board
Ref. No.	IC003	IC1201	IC104	IC206
Device	NONVOLATILE MEMORY	AV SWITCH (CXA1855S)	MAIN Y/C (CXA-2050S)	SURROUND PROCESSOR (TDA8424)
Flickering Frequency	1	2	3	6

All the devices are checked one after another from the left of the table.

If an error is found, the responding LED will start flickering.

So, if more than 1 device has failed, only the one on the left side will flicker.

SECTION 4
SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

Controls and switches should be set as follows unless otherwise noted:

PICTURE control .... normal
BRIGHTNESS control .... normal

Perform the adjustments in the following order :
1. Beam Landing
2. Convergence
3. Focus
4. White Balance

Note : Test Equipment Required.
1. Color-bar/Pattern Generator
2. Degausser
3. Oscilloscope

Preparation :

- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and degauss with the degausser.

4-1. BEAM LANDING

1. Position neck ass'y as shown in Fig4-1.
2. Input a white signal with the pattern generator.
   Contrast ⎫
   Brightness ⎭ normal
3. Set the pattern generator raster signal to a green raster.
4. Move the deflection yoke to the rear and adjust with the purity control so that the green is at the center and the blue and the red take up equally sized areas on each side.
   (See Figures 4-2 through 4-4.)
5. Move the deflection yoke forward and adjust so that the entire screen is green. (See Figure 4-2.)
6. Switch the raster signal to blue, then to red and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws and DY spacers.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it.
   (See Figure 4-5.)

Purity control

Fig. 4-3

Fig. 4-4

Purity control corrects this area.

Disk magnets or rotatable disk magnets correct these areas (a-d).

Deflection yoke positioning corrects these areas.

Neck assy

Behind the G1 edge

G1 G2 G3
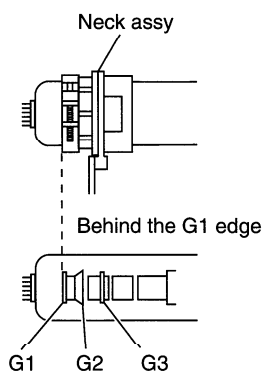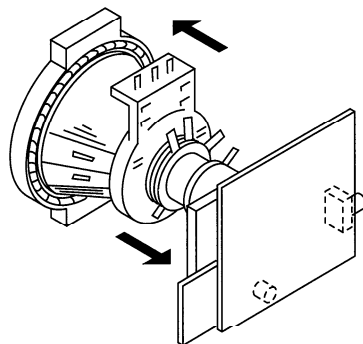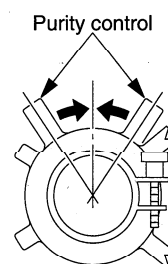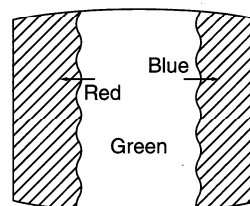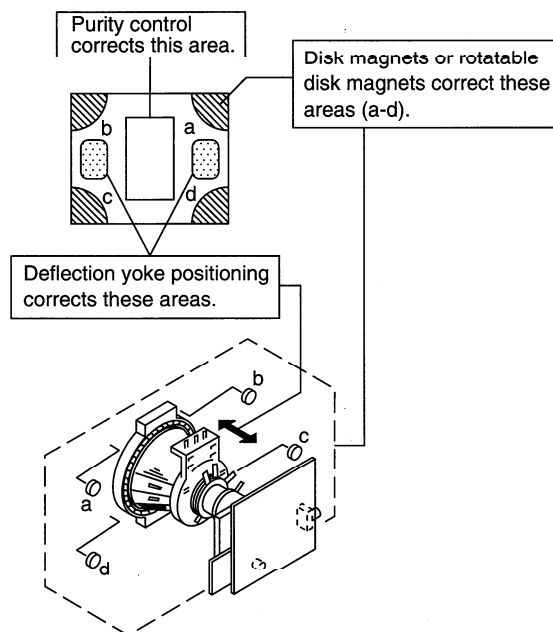
Fig. 4-1   **Fig. 4-2**   **Fig. 4-5**

4-2. CONVERGENCE

Preparation :

- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

(1) Horizontal and Vertical Static Convergence
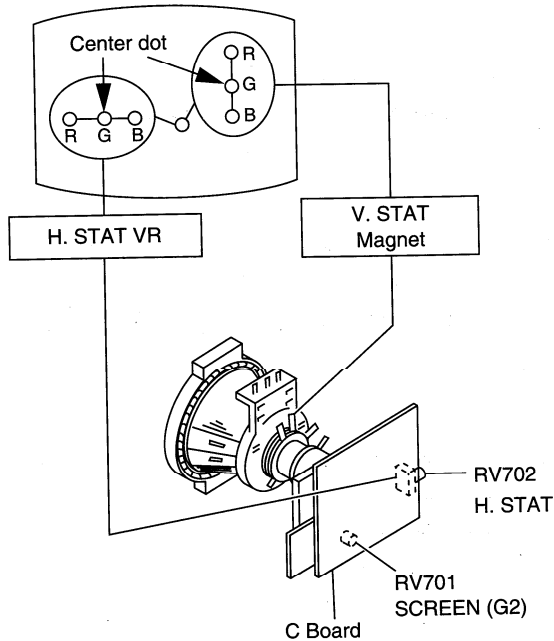
1. (Moving horizontally), adjust the H.STAT control so that the red, green and blue points are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green and blue points are on top of each other at the center of the screen.
3. If the red, green and blue points cannot come together at the center of the screen, adjust the convergence with the H.STAT variable resistor and the V.STAT magnet in the manner given below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other, so be sure to perform adjustments while tracking.)

- Operation of V.STAT magnet.
  If the V.STAT magnet is moved in the direction of the ⓐ and ⓑ arrows, the red, green and blue points move as shown below.
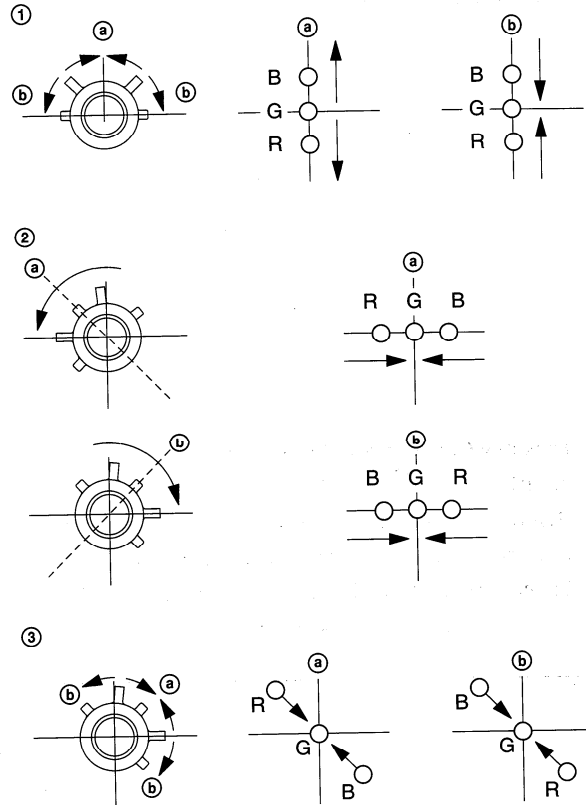
- Operation of BMC (Hexapole) Magnet.
  If the red, green and blue dots are not balanced or aligned, then use the BMC magnet to adjust in the manner described below.
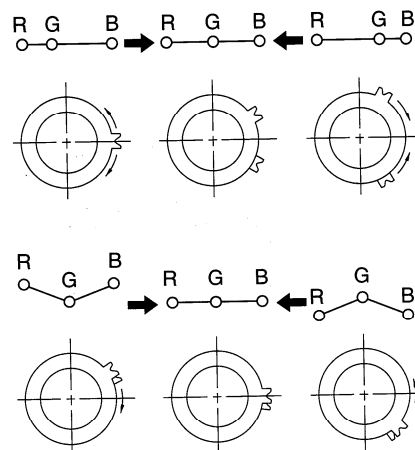
- Y separation axis correction magnet adjustment.
1. Receive the cross hatch signal and adjust [PICTURE] to [MIN] and [BRIGHTNESS] to [STANDARD] .

2. Adjust the Y separation axis correction magnet on the neck assembly so that the horizontal lines at the top and bottom of the screen are straight.
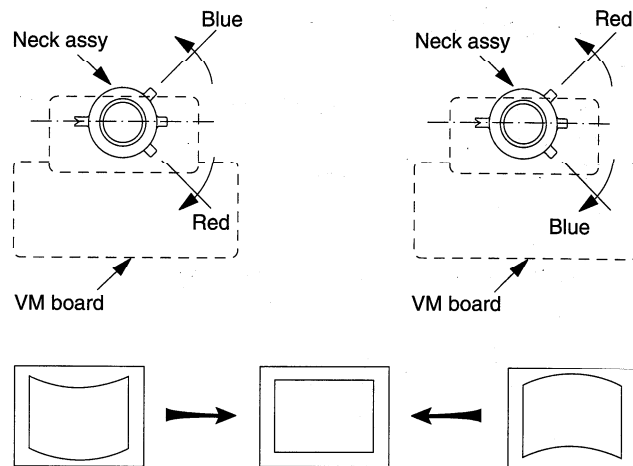
Note
1. The Red and Blue magnets should be equally far from the horizontal center line.
2. Do not separate the Red and Blue magnets too far. (Less than 8 mm)

(2) Dynamic Convergence Adjustment

Preparation:

- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence
1. Slightly loosen the deflection yoke screws.
2. Remove the deflection yoke spacer.

3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Install the deflection yoke spacer.
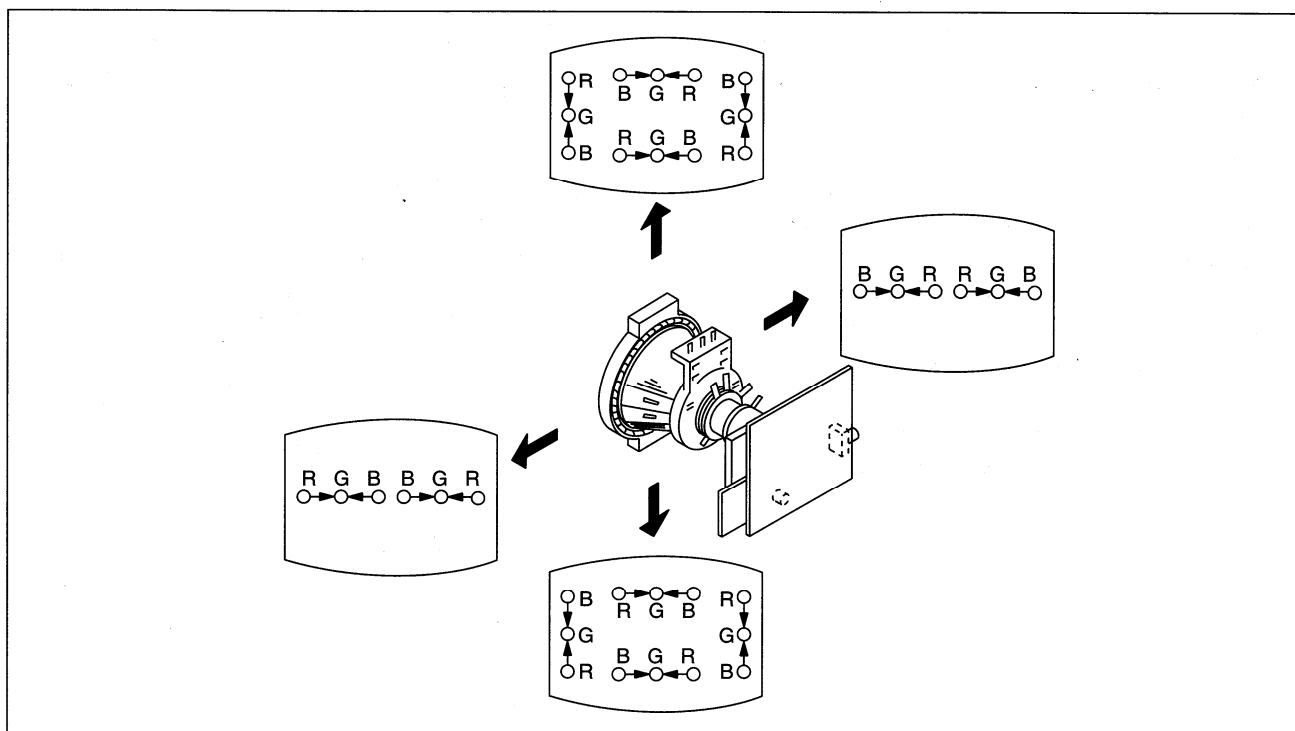
(3) Screen-corner Convergence


```
b                    a

    ┌─────────────────────┐
    │ a-d : screen-corner │
    │       misconvergence│
    └─────────────────────┘

c                    d
```
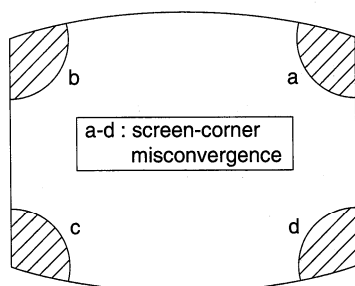
Affix a Permalloy assy corresponding to the misconverged areas.

Permalloy assembly
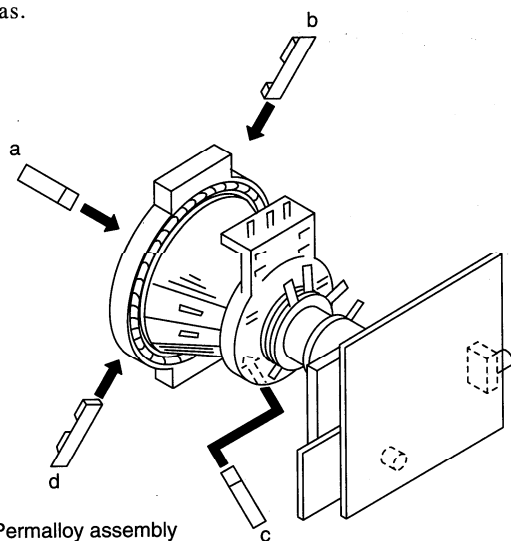
4-3. FOCUS ADJUSTMENT

Adjust FOCUS control on the flyback transformer for the best focus.

Focus

FLYBACK TRANSFORMER (T801)
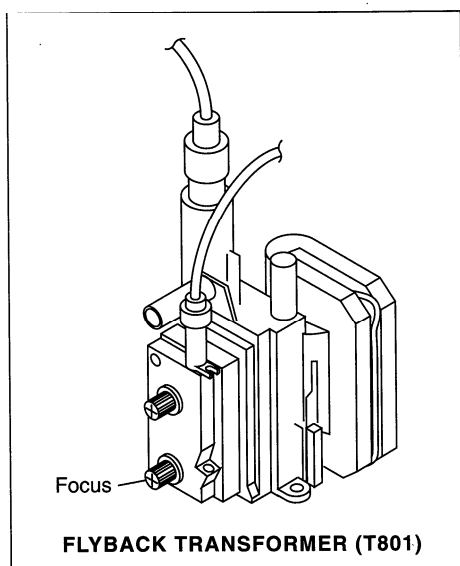
4-4. G2 (SCREEN) AND WHITE BALANCE ADJUSTMENTS

a. SOME ITEMS OF ADJUSTMENT

Item number	Adjustment item	Standard DATA		Note
		50Hz	60HZ	
35	SBR	17	17	SUB-BRIGHTNESS
37	GDR	2C		G. Drive
38	BDR	2C		B. Drive
39	GCF	07		G. Cut-off
3A	BCF	07		B. Cut-off

b. SERVICE MODE

Entering service mode

With the unit on standby

↓

DISPLAY

↓

5

↓

VOL (+)

↓
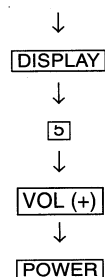
POWER

c. METHOD OF CANCELLATION FROM SERVICE MODE

Set the standby condition (Press POWER button on the commander), then press POWER button again, hereupon it becomes TV mode.

d. METHOD OF WRITE INTO MEMORY

1) Set to Service Mode.

2) Press 1 (UP) and 4 (DOWN), select an item of adjustment.

3) Press MUTING button and it will indicate WRITE on the screen.

4) Press 0 button to write into memory.

e. MEMORY WRITE CONFIRMATION METHOD

1) After adjustment, pull out the plug from AC outlet, and then plug into AC outlet again.
2) Turn the power switch ON and set to Service Mode.
3) Call the adjusted items again to confirm adjustments were made.

```
                        DATA
                          |
    ┌──────────────────────────────────────────┐
    │   09   LCP    07    SERVICE   50          │
    │   ↑     ↑                                 │
    │   |     Adjustment Item                   │
    │   Item number                            │
    │                                          │
    └──────────────────────────────────────────┘
```

```
┌─────────────────────────────────────────────────┐
│   1 , 4           Select the adjustment item.    │
│     ↓                                            │
│   3 , 6           Raise/lower the data value.    │
│     ↓                                            │
│   MUTING          Writes.                        │
│     ↓                                            │
│     0             Executes the writing.          │
└─────────────────────────────────────────────────┘
```
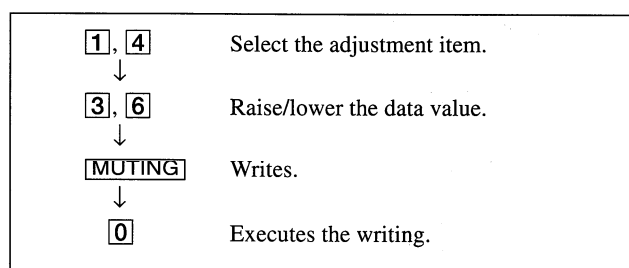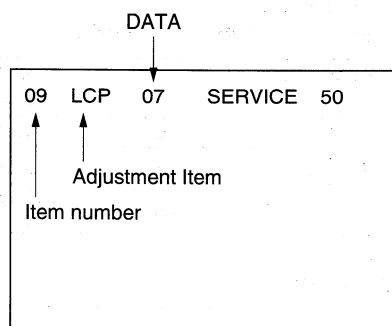
1. G2 (SCREEN) ADJUSTMENT (RV701)

1) Set the PICTURE and BRIGHTNESS to normal.
2) Put to VIDEO input mode without signals.
3) Set to Service Mode.
4) Change item number 8C BLU data from "01" to "00"
(To turn off Blue Back).
5) Press MUTING and 0 to write the data into the memory.
6) Connect R, G and B of the C board cathode to the oscilloscope.
7) Adjust G2 (RV701) volume to the value below.

```
    ┌─┐         ┌──────┐         ┌─┐
────┘ └─────────┘      └─────────┘ └────
                  ↑
                  |
              170 V ±2(VDC)
                  |
                  ↓
─────────────────────────────────── 0 V
```
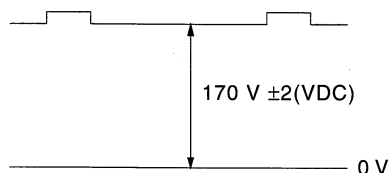
8) Re-set item number 8C BLU data from "00" back to "01".
9) Press MUTING and 0 to write the data into the memory.

2. WHITE BALANCE ADJUSTMENT

1) Set to Service Mode.
2) Input white raster signal.
3) Set the PICTURE to minimum.
4) Select 35 SBR with 1 and 4, and then set the level to minimum with 3 and 6.
5) Select 39 GCF and 3A BCF with 1 and 4, and adjust the level with 3 and 6 for the best white balance.
6) Set the PICTURE to maximum.
7) Select 37 GDR and 38 BDR with 1 and 4, and adjust the level with 3 and 6 for the best white balance.
8) Write into the memory by pressing MUTING then 0.

3. SUB BRIGHT ADJUSTMENT

1) Set to service mode.
2) Input a staircase signal of black to white from the pattern generator.
3) BRIGHTNESS .... 50%.
PICTURE .... minimum
4) Select 55 SBR with 1 and 4, and adjust SBR level with 3 and 6 so that the second stripe from the right is dimly lit.

```
White ┌─┐
      │ └─┐
      │   └─┐
      │     └─┐      second from the right
      │       └─┐   /
      │         └─┐/
      │           └─┐
Black │             └─┐
```
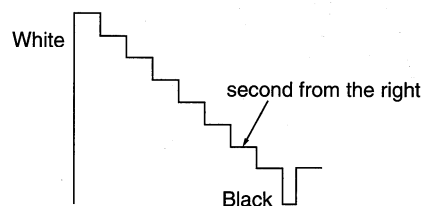
SECTION 5

CIRCUIT ADJUSTMENTS

5-1. ADJUSTMENTS WITH COMMANDER-

Service adjustments are made with the RM-873 that comes with this unit.
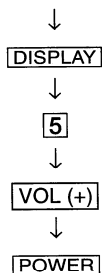
```
┌─────────────────────────────────────────────┐
│          Entering service mode                │
│     With the unit on standby                  │
│                   ↓                           │
│             ┌─────────┐                       │
│             │ DISPLAY │                       │
│             └─────────┘                       │
│                   ↓                           │
│                 ┌───┐                         │
│                 │ 5 │                         │
│                 └───┘                         │
│                   ↓                           │
│             ┌─────────┐                       │
│             │ VOL (+) │                       │
│             └─────────┘                       │
│                   ↓                           │
│             ┌─────────┐                       │
│             │ POWER   │                       │
│             └─────────┘                       │
│  This operation sequence puts the unit into   │
│  service mode.                                │
└─────────────────────────────────────────────┘
```
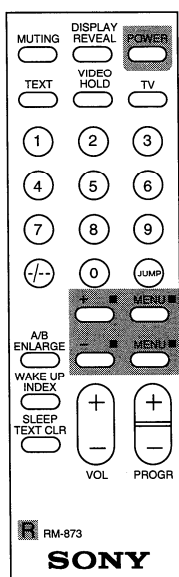

RM-873

```
┌────────────────────────────────────────────────────────┐
│  ┌───┐ ┌───┐                                            │
│  │ 1 │,│ 4 │          Select the adjustment item.       │
│  └───┘ └───┘                                            │
│        ↓                                                │
│  ┌───┐ ┌───┐                                            │
│  │ 3 │,│ 6 │          Raise/lower the data value.       │
│  └───┘ └───┘                                            │
│        ↓                                                │
│  ┌──────────┐                                           │
│  │ MUTING   │         Writes.                           │
│  └──────────┘                                           │
│        ↓                                                │
│      ┌───┐                                              │
│      │ 0 │            Executes the writing.             │
│      └───┘                                              │
└────────────────────────────────────────────────────────┘
```

┌───┐ ┌───┐
│ 7 │,│ 0 │   All the data becomes the values in memory.
└───┘ └───┘
┌───┐ ┌───┐
│ 8 │,│ 0 │   All user control goes to the standard state.
└───┘ └───┘
┌───┐ ┌───┐
│ 5 │,│ 0 │   Service data initialization (Be sure not to use
└───┘ └───┘   usually.)
┌───┐ ┌───┐
│ 2 │,│ 0 │   Write 50Hz adjustment data to 60Hz, or vice
└───┘ └───┘   versa.

The screen display is :

Adjustment item

Item number | DATA | Mode

```
┌──────────────────────────────────────────┐
│                                           │
│   00    VSH    1F   SERVICE   50◄──────── Depends on the signals
│                                           │
│   XXX    V2    1C   00 00 00             PAL, SECAM : 50
│                                           │
│                                           NTSC       : 60
│        SOFTWARE VERSION                   │
│                                           │
│   OEM CODE                                │
└──────────────────────────────────────────┘
```
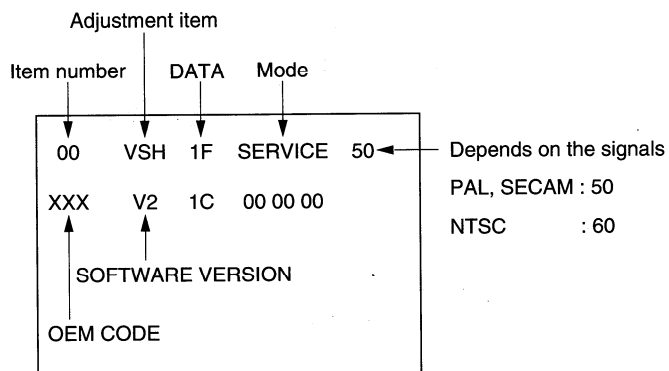
5-2. ADJUSTMENT METHOD

Item Number 00

This explanation uses V-Position as an example.

1. Select 00 VSH with the ☐1 and ☐4 buttons.
2. Raise/lower the data with the ☐3 and ☐6 buttons.
3. Select the optimum state. (The standard is 1F for PAL reception.)
4. Write with the ☐MUTING☐ button. (The display changes to WRITE.)
5. Execute the writing with the ☐0 button. (The WRITE display will be changed back to SERVICE.)

```
┌──────────────────────────────┐
│  00   VSH   1F    SERVICE 50 │ ──── Data adjusted with
│    ↖      ↖                   │      ☐3 and ☐6 buttons.
│       ↘                       │
│          ↘                    │ ──── Item selected with
│             ↘                 │      ☐1 and ☐4 buttons.
│                               │
│                               │
│                               │
└──────────────────────────────┘
```

```
┌──────────────────────────────┐
│  00   VSH   1F    WRITE  50  │
│                         ↖     │ ──── The display change from
│                               │      SERVICE to WRITE.
│                               │
│                               │
│                               │
│                               │
│                               │
└──────────────────────────────┘
```
Written with ☐MUTING☐

```
┌──────────────────────────────┐
│  00   VSH   1F    WRITE  50  │
│                       ↖       │ ──── The WRITE display
│                               │      then changes back to
│                               │      SERVICE.
│                               │
│                               │
│                               │
│                               │
└──────────────────────────────┘
```
Write executed with ☐0
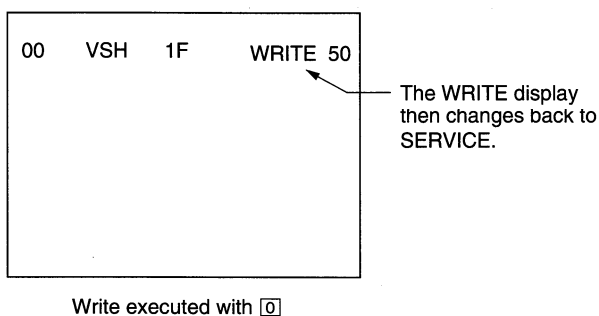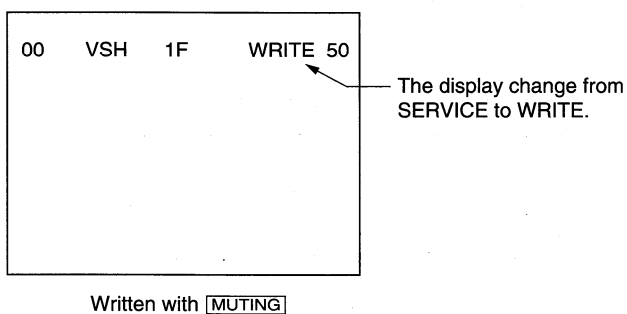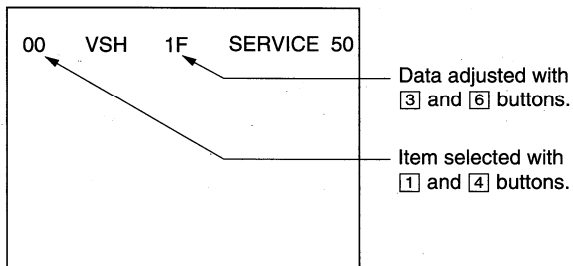
Use the same method for Items Number 00-96. Use ☐1 and ☐4 to select the adjustment item, use ☐3 and ☐6 to adjust, write with ☐MUTING☐, then execute the write with ☐0.

Note : 1. For adjustment items that have different standard data between 50Hz or 60Hz and normal or wide, be sure to use the respective input signal while adjusting.

2. In ☐WRITE☐, the data for all items are written into memory together.

Adjustment Item Table

Item number	Adjustment Item	Data range	Standard data	Note	Device
00	VSH	00-3F	1F	V Position	CXA2050S
01	VSZ	00-3F	1F	V Size	(Y/C/J)
02	HSH	00-0F	07	H Position	
03	HSZ	00-3F	1F	H Size	
04	SCR	00-0F	07	S Correction	
05	VLN	00-0F	07	V Linearity	
06	PAP	00-3F	1F	Pin Comp	
07	PPH	00-0F	07	Pin Phase	
08	UCP	00-0F	07	Up Corner Pin	
09	LCP	00-0F	07	Low Corner Pin	
0A	BOW	00-0F	07	AFC-Bow	
0B	ANG	00-0F	07	AFC-Angle	
0C	VAP	00-3F	2F	V Aspect	
0D	VSC	00-3F	1F	V Scroll	
0E	ULN	00-0F	00	UP V Linearity	
0F	LLN	00-0F	00	LOW V Linearity	
10	**EHH**	00-03	00	EHT-H	
11	**EHV**	00-03	01	EHT-V	
12	**HBS**	00-01	01	H Blk Wid. ON/OFF	
13	**LBK**	00-0F	0F	L Blk Width	
14	**RBK**	00-0F	0F	R Blk Width	
15	**JSW**	00-01	00	Jump ON/OFF Sw	
16	**VBW**	00-03	02	V Blk Wid. Con.	
17	**AFC**	00-03	03	AFC-Mode	
18	**FHH**	00-01	00	FH-HI	
19	**VFQ**	00-03	00	V-Freq	
1A	**VOF**	00-01	00	V OFF	
1B	**VMD**	00-01	00	CD-Mode 2	
1C	**CMD**	00-01	00	CD-Mode	
1D	**ITL**	00-03	00	Inter lace	
1E	**ZSW**	00-01	00	ZOOM SW	
1F	**POV**	00-03	03	Pre-Over	
20	**CT1**	00-01	01	C-Trap(NTSC)	
21	**CT2**	00-01	01	C-Trap(PAL)	
22	**CF0**	00-0F	07	C-Trap f0 Adj	
23	**SF0**	00-01	01	Sharpness f0 Adi	
24	**TOT**	00-01	01	TOT Filter SW	
25	**CSW**	00-03	00	Color SW	
26	**XTL**	00-03	00	Xtal	
27	**CV1**	00-01	01	CV/YC Select(NTSC)	
28	**CV2**	00-01	01	CV/YC Select(PAL)	
29	**VM**	00-01	01	VM ON/OFF	
2A	**YVM**	00-01	00	YSI/VM SW(0:YSI)	
2B	**DPC**	00-01	01	D-Pic ON/OFF	
2C	**DCO**	00-01	01	Dynamic Color	
2D	**GMM**	00-03	01	Gamma	
2E	**DTR**	00-01	01	DC-Tran	
2F	**DL1**	00-07	01	Delay Ctrl.(PAL)	
30	**DL2**	00-07	03	Delay Ctrl.(NTSC)	
31	**DL3**	00-07	03	Delay Ctrl.(SECAM)	
32	SCN	00-0F	09	Sub-Contrast	
33	SCO	00-0F	0B	Sub-Color	
34	SHU	00-0F	05	Sub-Hue	
35	SBR	00-3F	17	Sub-Bright	
36	**SSH**	00-07	04	Sub-Sharpness	
37	GDR	00-3F	2C	G-Drive	
38	BDR	00-3F	2C	B-Drive	
39	GCF	00-0F	07	G-Cutoff	

Note: ▨ Bold items are fixed data.

Adjustment Item Table

Item number	Adjustment Item	Data range	Standard data	Note	Device
3A	BCF	00-0F	07	B-Cutoff	CXA2050S
3B	RPO	00-03	01	Ref-Position	(Y/C/J)
3C	PON	00-01	01	Pic-ON	
3D	RON	00-01	01	R ON	
3E	GON	00-01	01	G ON	
3F	BON	00-01	01	B ON	
40	AKF	00-01	00	AKB ON/OFF SW	
41	ESY	00-01	00	Ext Sync Select	
42	AGG	00-01	00	Aging Mode ON/OFF	
43	ABL	00-01	01	ABL Pic/Pic&Brt SW(0:Pic only)	
44	LIM	00-01	00	RGB Limit ON/OFF(0:ON)	
45	PB	00-01	01	Picture Booster	TDA9170
46	BOF	00-01	01	Black Offset	(Picture
47	UVG	00-3F	1F	User Var. Gamma	Improve)
48	ADG	00-3F	1F	Adaptive Gamma	
49	NLA	00-3F	0F	Non-linear Amp	
4A	WDS	00-02	00	Window Select	
4B	LST	00-0F	07	Window Line Start	
4C	LSP	00-0F	07	Window Line Stop	
4D	FST	00-0F	07	Window Field Start	
4E	FSP	00-0F	07	Window Field Stop	
4F	VA	00-01	01	V Aperture on/off	CXA1315
50	VAW	00-03	02	V Aperture white	(V-AP)
51	VAB	00-03	00	V Aperture black	
52	VAC	00-0F	03	V Aperture core	
53	SHP	00-3F	0F	Sharpness	CXA1315
54	VML	00-3F	29	VM Limitter	(LTI)
55	COR	00-3F	17	Coreing	
56	DOF	00-3F	15	DSC Offset	
57	DGA	00-3F	1F	DSC Gain	
58	DLT	00-01	01	Delay Time	
59	SDL	00-0F	00	SEL Pin Delay	SDA9189X
5A	POH	00-FF	14	H Position(MSB8bit)	(PinP)
5B	POV	00-FF	27	V Position	
5C	PMD	00-1F	00	Pinp Display Mode	
5D	WRP	00-0F	00	Write Position	
5E	HDL	00-1F	0B	HSI Delay	
5F	AMS	00-01	00	Decimation Filter	
60	VDL	00-1F	0B	VSI Delay	
61	VSP	00-1F	06	VSP Delay	
62	CON	00-0F	06	Contrast	
63	FRY	00-0F	09	Frame Y	
64	FRV	00-0F	00	Frame V	
65	FRU	00-0F	00	Frame U	
66	INF	00-01	01	Inner Frame	
67	FWV	00-03	02	Frame Width V	
68	FWH	00-07	07	Frame Width H	
69	PLL	00-03	02	PLL Loop Filter	
6A	PDV	00-0F	00	Pedestal V	
6B	PDU	00-0F	00	Pedestal U	
6C	DAT	00-01	00	DAC Stream Control	
6D	DAN	00-01	00	DAC Control	
6E	WIP	00-01	00	Wipe on/off	
6F	WSP	00-03	00	Wipe Speed	

Note: [░░░] Bold items are fixed data.

Adjustment Item Table

Item number	Adjustment Item	Data range	Standard data	Note	Device
70	FAW	00-FF	08	NICAM FAW Thresh	MSP3410
71	CTM	00-FF	08	NICAM Error Bit(MONO)	(Audio Stereo
72	CTN	00-FF	50	NICAM Error Bit(NICAM)	Decoder)
73	WCD	00-FF	0A	W.G.Change Data	
74	WST	00-FF	15	W.G.STEREO Threshold	
75	WTM	00-FF	50	W.G.Timer	
76	WBT	00-FF	EA	W.G.BILINGUAL Threshold	
77	ACG	00-01	01	AGC AUTO/CONST.	
78	CDB	00-3F	28	AGC GAIN CONST.	
79	FGP	00-7F	24	FM(BG,I,DK)Prescale	
7A	FMP	00-7F	40	FM(M) Prescale	
7B	WGP	00-7F	3C	W.G.Prescale	
7C	NIP	00-7F	7F	NICAM Prescale	
7D	CRM	00-01	00	Carrier Mute	
7E	CML	00-03	00	Carrier Mute Level	
7F	ACO	00-01	01	Audio Clock Out	
80	WAC	00-0F	01	W.G Agreement count	
81	DLY	00-FF	30	Stereo Search Delay	
82	DLG	00-FF	10	W.G. Search Delay	
83	TXP	00-0F	0E	Text Picture cont.	SAA 5281
84	MXP	00-0F	0F	Text Mix mode Pic.	
85	BB1	00-3F	1D	BBE control High	CXA1315
86	BB2	00-3F	1D	BBE control Middle	(BBE)
87	BB3	00-3F	28	BBE control Low	
88	ATW	00-03	01	Auto Wide Ident Speed	CXP5068
89	BKP	00-FF	00	Blk off Picture	CXP85340
8A	OSH	00-3F	0A	OSD Position H	(MICRO
8B	ODL	00-FF	00	Power On Delay	CONTROLLER)
8C	BLU	00-01	01	Blue Back on/off	
8D	ROC	00-0F	08	N/S Center Vol.	
8E	ROS	00-07	04	User Step	
8F	DKS	00-01	00	D/K Stereo Search	
90	MUT	00-01	01	No Sync. Mute	
91	DID	00-01	00	Disable Degauss	
92	DWZ	00-01	01	Disable Widezoom	
93	BCS	00-01	00	BASS Center Shift	
94	BVS	00-01	00	Basso Volume Shift	
95	OP0	00-FF	01	Option 0	
96	OP1	00-FF	3E	Option 1	

NOTE
- ▓ Bold items are fixed data
- 50 ··· 50Hz data, 60 ··· 60Hz data
- Standard data listed on the Adjustment Item Table are reference values, therefore it may be different for each model and for each mode.

ITEM INFORMATION.
No. 95 OP0

Item	–	–	–	–	–	–	–	Fastext
KV-J29SN21/SZ2	0	0	0	0	0	0	0	1
KV-J29MF1/MN2	0	0	0	0	0	0	0	0

No. 96 OP1

Item	Wide	Woofer	Tilt	VM	Comb type	Comb filter	SECAM	B/G only
KV-J29SN21/SZ2	0	1	1	1	0	0	0	1
KV-J29MF1	0	0	1	1	0	0	1	0
KV-J29MN2	0	1	1	1	0	0	1	0

- 95 OP0, 96 OP1
  - Fastext   : 0 → Automatic mode, 1 → Fastext mode
  - B/G only   : 0 → Multi system, 1 → B/G system only
  - Comb type : 0 → Glass comb filter, 1 → Digital comb filter
  - Wide   : 0 → 4:3 model, 1 → 16:9 model

5-3. PICTURE QUALITY ADJUSTMENTS

SUB CONTRAST ADJUSTMENT (SCN)

1. Receive a PAL color-bar.
2. Set service item 3E GON and 3F BON to data "00". Set the PICTURE 100%, BRIGHTNESS 50% and COLOR MIN.
3. Connect an oscilloscope to the pin ⑥ (R OUT) of CN117, A board.
4. Set to Service Mode and select 32 SCN using [1] and [4] of the commander, then adjust to 2.30 ± 0.05V using [3] and [6].
5. Press [MUTING] → [0] of the commander to write the data.
6. Receive a NTSC color-bar and adjust 32 SCN as step 2 to 5.
7. Set service item 3E GON and 3F BON to data "01".
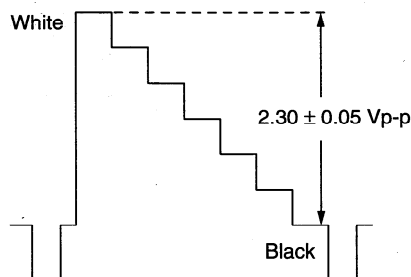
SUB COLOR ADJUSTMENT (SCO)

1. Input a PAL color-bar.
2. Set service item 49 NLA to data "00".
   Set to the following condition:
   PICTURE 100%, BRIGHTNESS 50%, COLOR 50%
3. Connect an oscilloscope to the pin ④ (B OUT) of CN117, A board.
4. Set to Service Mode and select 33 SCO with [1] and [4] of the commander then adjust to VB2=VB3=VB4 with [3] and [6].
5. Press [MUTING] → [0] of the commander to write the data.
6. Adjust 33 SCO as step 2 to 5 when receiving NTSC color-bar.
7. Set service item 49 NLA to data "0F" and write the data.

VB2 = VB3 = VB4
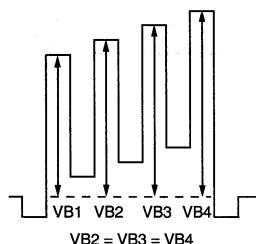
SUB HUE ADJUSTMENT (SHU)

1. Receive a NTSC color-bar.
2. Set the following condition:
   PICTURE 100%, BRIGHTNESS 50%, COLOR 50%, HUE –0%
3. Connect an oscilloscope to the pin ④ (B OUT) of CN117, A board.
4. Select 34 SHU with [1] and [4] of the commander by setting to Service Mode and adjust to VB1=VB2=VB3=VB4 with [3] and [6].

VB1 = VB2 = VB3 = VB4
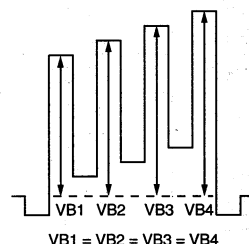
5. Press [MUTING] → [0] of the commander to write the data.
6. Set to WIDE Mode by [MENU] button to write the same value as in step 4.

5-4. A BOARD ADJUSTMENT AFTER IC003 (MEMORY) REPLACEMENT

1. Enter to Service Mode.

2. Press commander buttons [5] and [0] (Data Initialize), and [2] and [0] (Data Copy) to initialize the data.

3. Call each item number and check if the respective screen shows the normal picture.
   In cases where items are not well adjusted, rectify the items with fine adjustment.
   Write the data per each item number ([MUTING] +[0]).

4. Select item numbers 95 OP0 and 96 OP1 and respectively set the bit per model with command buttons [3] and [6].

5. Press commander buttons [8] and [0] (Test Normal) to return to the data that was set on the shipment from the factory.
   (This will also cancel Service Mode.)

5-5. PICTURE DISTORTION ADJUSTMENT

Item Number 00 – 0B

00   VSH(V POSITION)
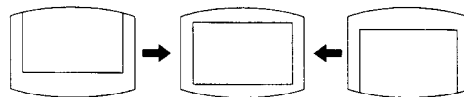
01   VSZ(V SIZE)

02   HSH(H POSITION)
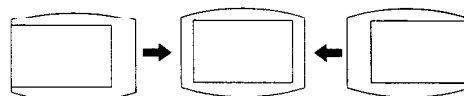
03   HSZ (H SIZE)

04   SCR(VERTICAL S-Correction)
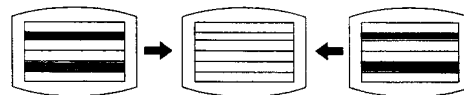
05   VLN(V LINEARITY)

06   PAP (PIN AMP)

07   PPH(PIN PHASE)

08   UCP(Upper Corner Pin)
09   LCP(Lower Corner Pin)

0A   VBOW(AFC.BOW)

0B   VAG(AFC.ANGLE)

Note:

- All capacitors are in µF unless otherwise noted. (pF: µµF)
  Capacitors without voltage indication are all 50 V.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

  Pitch: 5 mm
  Rating electrical power 1/4 W (CHIP : 1/10 W)

- All resistors are in ohms.
- ⎓⎓⎓⎓ : nonflammable resistor.
- ⎓⎓⎓⎓ : fusible resistor.
- △ : internal component.
- ⎿⎾ : panel designation, and adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊥ : earth-ground.
- 〒 : earth-chassis.
- All voltages are in V.
- Readings are taken with a 10 M digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerances.
- ∗ : Can not be measured.
- NO MARK: PAL
- < > : SECAM
- ( ) : NTSC 3.58 MHz
- Circled numbers are waveform references.
- ▬ : B + bus.
- ▬▬▬▬ : B – bus.
- ⟹ : Signal path.

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RW	NONFLAMMABLE WIREWOUND
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Terminal name of semiconductors in silk printed circuit (∗)

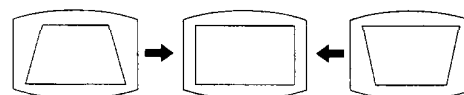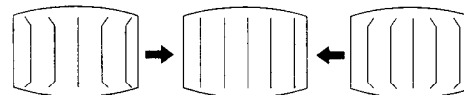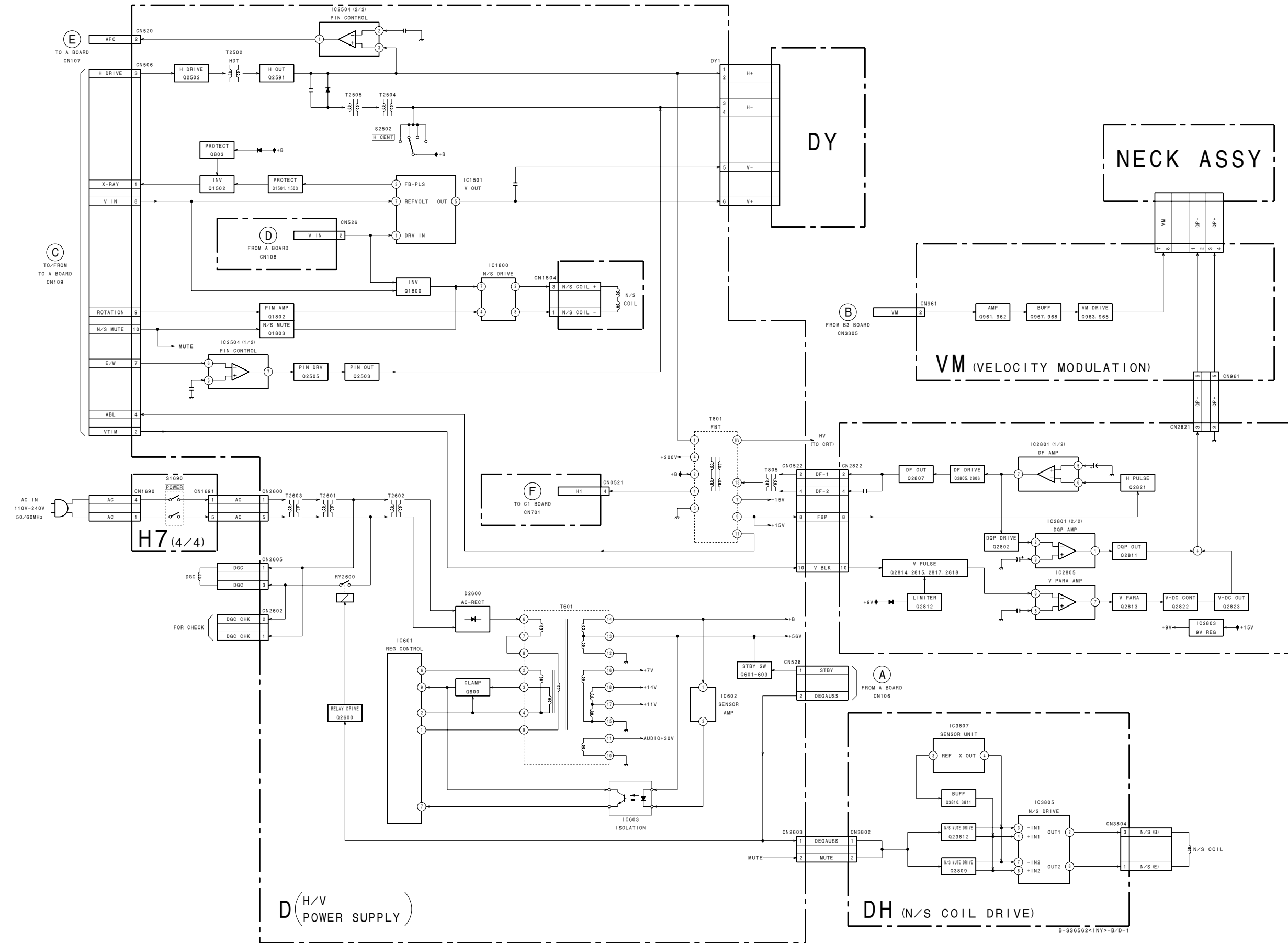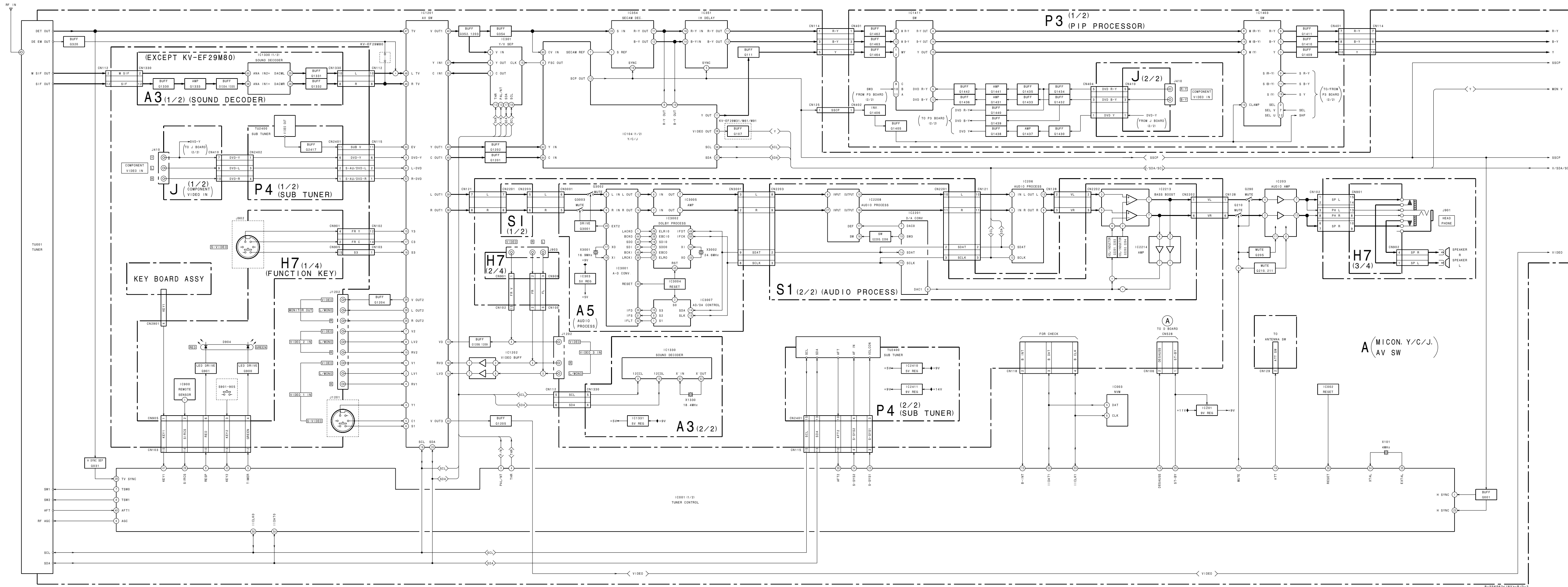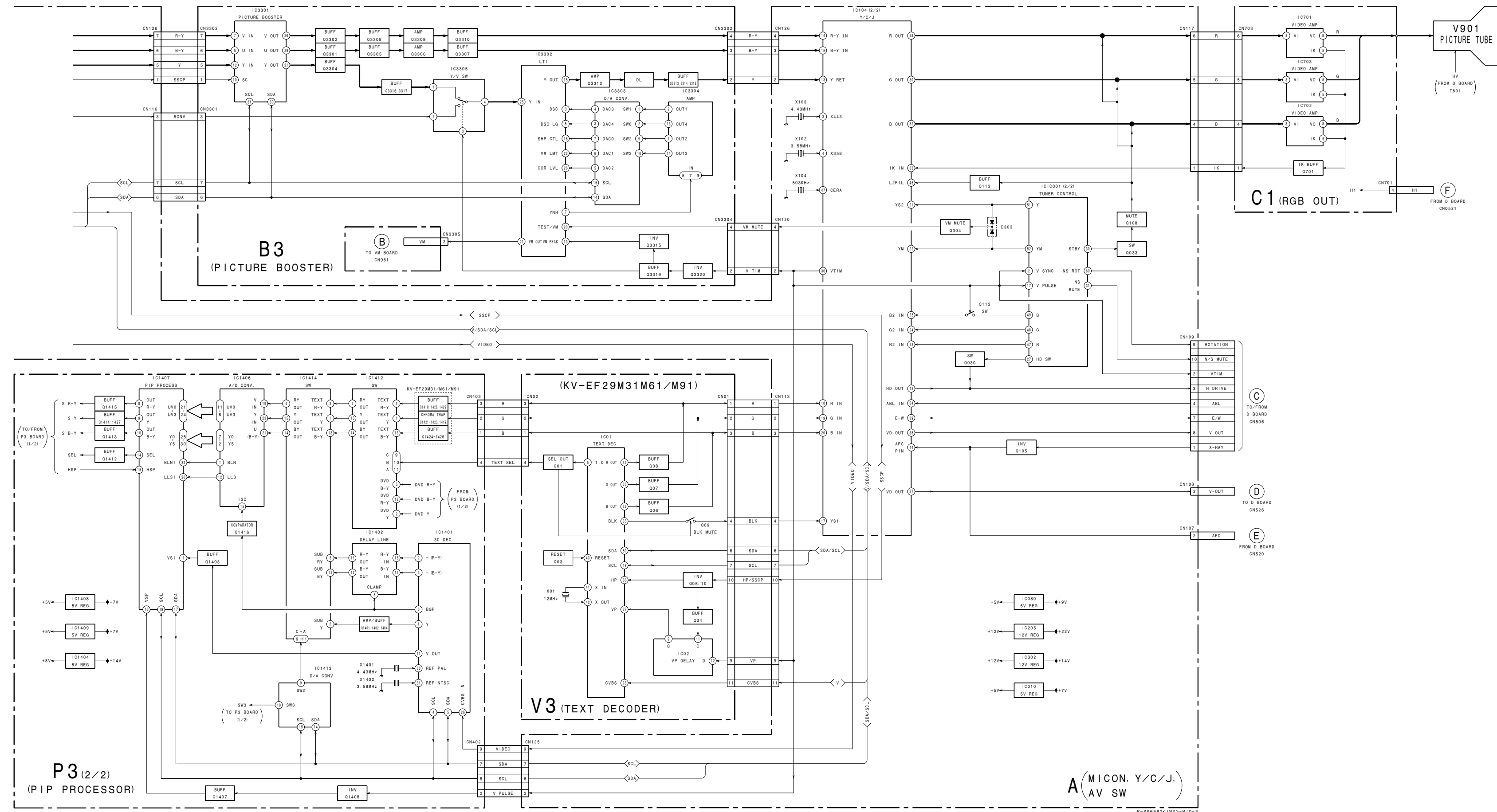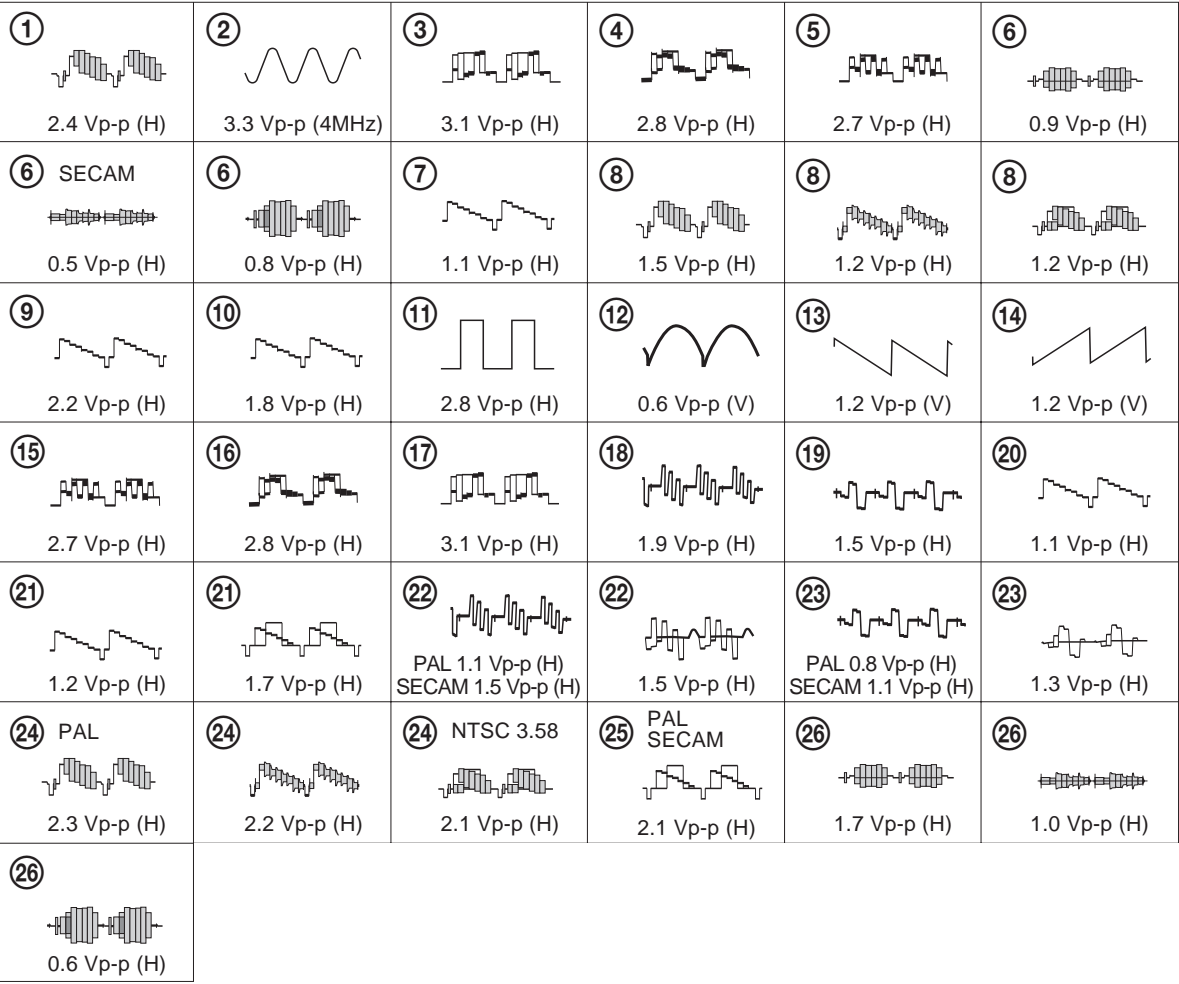|	Device	Printed symbol	Terminal name	Circuit
①	Transistor		Collector / Base / Emitter	
②	Transistor		Collector / Base / Emitter	
③	Diode		Cathode / Anode	
④	Diode		Cathode / Anode (NC)	
⑤	Diode		Cathode / Anode (NC)	
⑥	Diode		Common / Anode Cathode	
⑦	Diode		Common / Anode Anode	
⑧	Diode		Common / Anode Anode	
⑨	Diode		Common / Anode Anode	
⑩	Diode		Common / Cathode Cathode	
⑪	Diode		Common / Cathode Cathode	
⑫	Diode		Anode Cathode / Anode Anode / Cathode Anode	
⑬	Transistor (FET)		Drain / Gate Source	
⑭	Transistor (FET)		Drain / Gate Source	
⑮	Transistor (FET)		Source / Drain / Gate	
⑯	Transistor		Emitter / Collector / Base	
⑰	Transistor			
⑱	Transistor			
⑲	Transistor			
⑳	Transistor			
㉑	Transistor			
㉒	Transistor			
㉓	Transistor			
—	Discrete semiconductor			

(Chip semiconductors that are not actually used are included.)

• A BOARD SEMICONDUCTOR LOCATION

IC		DIODE	
IC001	B–9		∗
IC002	C–8	D001	C–8
IC003	C–9	D002	C–10 ③
IC010	E–9	D005	B–9
IC080	E–2	D001	A–7
IC102	D–10	D102	A–7
IC104	C–6	D103	A–3 ③
IC201	D–9	D104	C–7 ③
IC203	E–6	D105	C–7 ③
IC205	C–4	D106	B–7 ④
IC206	B–5	D107	C–6 ④
IC301	D–2	D110	A–7 ③
IC302	D–3	D111	B–7
IC351	B–6	D112	D–6 ④
IC354	B–5	D117	C–6 ④
IC1201	C–3	D118	C–7
IC1202	C–2	D210	E–8
		D211	E–6 ③
		D212	E–7 ③
TRANSISTOR		D218	E–6 ③
		D220	E–7
		D301	A–7 ③
	∗	D303	B–7
Q001	A–8 ①	D352	B–6
Q030	C–10 ①	D353	B–6
Q031	A–7 ①	D1201	C–1
Q033	A–9 ①	D1202	C–1
Q105	E–6 ①	D1203	C–1
Q106	D–6 ①	D1204	C–2
Q107	D–5 ①	D1205	C–1
Q108	C–7 ①	D1208	B–1
Q111	C–6 ①	D1209	B–1
Q112	A–7 ①	D1210	B–1
Q113	C–6 ①	D1211	C–1
Q205	E–6 ①	D1212	C–1
Q208	E–6 ①	D1213	C–1
Q209	E–6 ①	D1214	D–1
Q210	E–6 ①	D1215	D–1
Q211	E–8 ①	D1216	D–1
Q302	D–3 ①	D1217	D–1
Q304	E–5 ①	D1218	D–1
Q352	D–3 ①	D1219	D–1
Q354	C–3 ①	D1220	C–3
Q1201	B–3 ①		
Q1202	B–3 ①	CRYSTAL	
Q1203	C–3 ①		
Q1204	B–2 ①	X101	B–10
Q1205	C–2 ①	X102	C–5
Q1206	C–2 ①	X103	B–5
Q1207	D–1 ①	X104	D–6
Q1208	D–2 ①		
Q1209	D–2 ①		

∗: Refer to Terminal name of semiconductors in silk screen printed circuit (see page 55)

Ref No.	KV-EF29M31	KV-EF29M61	KV-EF29M80(JE)	KV-EF29M80(ME)	KV-EF29M90	KV-EF29M91
C055	100 16V	100 16V	470 16V	470 16V	100 16V	100 16V
C072	330 16V	330 16V	470 16V	470 16V	330 16V	330 16V
C093	NOT USED	NOT USED	47 25V	47 25V	NOT USED	NOT USED
CN113	12P :BTOB	12P :BTOB	NOT USED	NOT USED	12P :BTOB	12P :BTOB
D110	1SS355	1SS355	NOT USED	NOT USED	1SS355	1SS355
IC001	CXP8545Z-090S	CXP8545Z-090S	CXP8545Z-091S	CXP8545Z-090S	CXP8545Z-090S	CXP8545Z-091S
JR017	0 :CHIP	NOT USED	0 :CHIP	NOT USED	0 :CHIP	0 :CHIP
JW131	10MM	NOT USED	10MM	NOT USED	10MM	10MM
JW158	22 2W :RS	NOT USED	22 2W :RS	NOT USED	22 2W :RS	22 2W :RS
JW164	JW(17.5)	NOT USED	JW(17.5)	NOT USED	JW(17.5)	JW(17.5)
JW165	10MM	NOT USED	10MM	NOT USED	10MM	10MM
JW172	10MM	NOT USED	10MM	NOT USED	10MM	10MM
Q107	2SC2712	2SC2712	NOT USED	NOT USED	2SC2712	2SC2712
R060	100 :CHIP	100 :CHIP	NOT USED	NOT USED	100 :CHIP	100 :CHIP
R073	47k :CHIP	10k :CHIP	0 :CHIP	10k :CHIP	10k :CHIP	47k :CHIP
R131	0 :CHIP	NOT USED	0 :CHIP	NOT USED	0 :CHIP	0 :CHIP
R136	0 :CHIP	NOT USED	NOT USED	NOT USED	0 :CHIP	0 :CHIP
R140	470 :CHIP	NOT USED	470 :CHIP	NOT USED	470 :CHIP	470 :CHIP
R151	NOT USED	NOT USED	560 :CHIP	560 :CHIP	560 :CHIP	NOT USED

Waveform references

① 2.4 Vp-p (H) ② 3.3 Vp-p (4MHz) ③ 3.1 Vp-p (H) ④ 2.8 Vp-p (H) ⑤ 2.7 Vp-p (H) ⑥ 0.9 Vp-p (H)

⑥ SECAM 0.5 Vp-p (H) ⑥ 0.8 Vp-p (H) ⑦ 1.1 Vp-p (H) ⑧ 1.5 Vp-p (H) ⑧ 1.2 Vp-p (H) ⑧ 1.2 Vp-p (H)

⑨ 2.2 Vp-p (H) ⑩ 1.8 Vp-p (H) ⑪ 2.8 Vp-p (H) ⑫ 0.6 Vp-p (V) ⑬ 1.2 Vp-p (V) ⑭ 1.2 Vp-p (V)

⑮ 2.7 Vp-p (H) ⑯ 2.8 Vp-p (H) ⑰ 3.1 Vp-p (H) ⑱ 1.9 Vp-p (H) ⑲ 1.5 Vp-p (H) ⑳ 1.1 Vp-p (H)

㉑ 1.2 Vp-p (H) ㉑ 1.7 Vp-p (H) ㉒ PAL 1.1 Vp-p (H) SECAM 1.5 Vp-p (H) ㉒ 1.5 Vp-p (H) ㉓ PAL 0.8 Vp-p (H) SECAM 1.1 Vp-p (H) ㉓ 1.3 Vp-p (H)

㉔ PAL 2.3 Vp-p (H) ㉔ 2.2 Vp-p (H) ㉔ NTSC 3.58 2.1 Vp-p (H) ㉕ PAL SECAM 2.1 Vp-p (H) ㉖ 1.7 Vp-p (H) ㉖ 1.0 Vp-p (H)

㉖ 0.6 Vp-p (H)

• A BOARD IC351 TDA4665T

• A BOARD IC354 TDA8395T

• A BOARD IC1201 CXA1855S

• A BOARD DESCRIPTION

AUDIO PROCESS, Y/C/J, TUNER CONTROL

H7 (FUNCTION KEY)

• H7 BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]
IC900	1	5.0
Q900	E	0
	C	5.0
	B	0
Q901	E	0
	C	5.0
	B	0

P4 (SUB TUNER)

• P4 BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]
IC2410	I	8.9
	O	5.0
IC2411	I	14.9
	O	8.9
Q2417	E	2.7
	B	3.4

• P4 BOARD DESCRIPTION

REF. NO.	
IC2410	5V REG
IC2411	9V REG
Q2417	BUFF

J (COMPONENT VIDEO IN)

P3 (PIP PROCESSOR)

• P3 BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]
IC1401	1	2.3
	2	2.2
	3	2.1
	4	4.3
	5	4.6
	6	0.4
	7	0.3
	11	6.6
	12	3.9
	14	1.7
	21	3.6
	26	3.3
	29	3.4
	30	2.0
	31	1.9
	32	4.0
IC1402	5	0.4
	11	1.0
IC1403	7	1.0
	12	2.9
	14	1.4
	16	1.4
IC1404	1	12.6
	O	7.9
IC1406		4.2
IC1407	1	0.4
	2	2.5
	3	3.1
	5	0.4
	6	0.4
IC1408	I	7.2
IC1409	O	5.0
IC1411		3.9
IC1413		
IC1414		
IC1412		
Q1401	E	2.2
	C	7.3
	B	2.8
Q1402	E	5.0
	C	7.3
Q1403	C	0.4
	B	3.0
Q1404	E	4.0
	B	3.0
Q1405	C	0.4
	B	3.3
Q1406	C	3.3
Q1407	B	0.2
Q1408	C	4.6
	B	4.4
Q1409	E	2.5
	C	4.5
Q1410	B	2.2
Q1411	C	2.2
	B	1.5
Q1413	B	1.6
	E	1.0
Q1414	E	1.4
	B	0.7
Q1415	E	1.4
	B	0.8
Q1427	E	0.7
	C	0
	B	0
Q1430	C	3.3
	B	3.9
Q1431	E	2.3
	B	3.0
Q1432	E	1.6
Q1433	C	3.0
	B	3.6
Q1434	C	4.0
Q1435	C	4.0
Q1436	E	7.9
Q1437	E	7.2
	B	6.4
Q1438	E	7.9
Q1439	B	7.2
	C	7.2
	B	4.4
Q1440	E	3.8
	C	4.4
Q1441	E	3.8
	C	4.5
	B	5.2
Q1442	E	2.1
	B	2.7
Q1462	E	3.6
Q1463	B	3.6
	E	3.9
Q1464	B	4.1

• P3 BOARD DESCRIPTION

REF. NO.		REF. NO.		REF. NO.	
IC1401	3C DECODER	Q1408	INVERTER	Q1429	AMP
IC1402	DELAY LINE	Q1409	BUFF	Q1430	AMP
IC1403	SWITCH	Q1410	BUFF	Q1431	BUFF
IC1404	6V REG	Q1412	BUFF	Q1433	BUFF
IC1406	A/D CONVERTER	Q1413	BUFF	Q1434	BUFF
IC1407	PIP PROCESSOR	Q1414	BUFF	Q1435	BUFF
IC1408	5V REG	Q1415	BUFF	Q1436	BUFF
IC1409	5V REG	Q1416	BUFF	Q1437	BUFF
IC1411	D/A CONVERTER	Q1416	COMPARATOR	Q1438	BUFF
IC1412	SWITCH	Q1418	R BUFF	Q1439	BUFF
IC1413	D/A CONVERTER	Q1419	BUFF	Q1440	AMP
IC1414	SWITCH	Q1421	Y BUFF	Q1441	AMP
Q1401	AMP	Q1422	G BUFF	Q1442	AMP
Q1402	AMP	Q1423	AMP	Q1462	BUFF
Q1403	BUFF	Q1424	AMP	Q1463	BUFF
Q1404	BUFF	Q1425	-(B-Y) BUFF	Q1464	BUFF
Q1405	BUFF	Q1426	-(B-Y) BUFF		
Q1406	INVERTER	Q1427	AMP		
Q1407	BUFF	Q1428	-(R-Y) BUFF		

• P3 BOARD WAVEFORMS

① 1.1 Vp-p (H)	② 1.9 Vp-p (H)	③ 1.6 Vp-p (H)	④ 1.0 Vp-p (H)	⑤ 1.9 Vp-p (H)	⑥ 1.5 Vp-p (H)	⑦ 1.6 Vp-p (H)	⑧ 1.1 Vp-p (H)
⑨ 1.9Vp-p (H)	⑩ 1.1 Vp-p (H)	⑪ 1.6 Vp-p (H)	⑫ 1.6 Vp-p (H)	⑬ 1.9 Vp-p (H)	⑭ 1.9 Vp-p (H)	⑮ 1.1 Vp-p (H)	

• P3 BOARD ✻ MARK PARTS LIST

Ref No.	KV-EF29M31	KV-EF29M61	KV-EF29M80	KV-EF29M90	KV-EF29M91
C1478	1.16v F.CHIP	1.16v F.CHIP	NOT USED	NOT USED	1.16v F.CHIP
CN403	5P WHT :S-MICRO	5P WHT :S-MICRO	NOT USED	NOT USED	5P WHT :S-MICRO
Q1418	2SC2712	2SC2712	NOT USED	NOT USED	2SC2712
Q1419	2SC2712	2SC2712	NOT USED	NOT USED	2SC2712
Q1421	2SC2712	2SC2712	NOT USED	NOT USED	2SC2712
Q1423	2SA1162	2SA1162	NOT USED	NOT USED	2SA1162
Q1424	2SA1162	2SA1162	NOT USED	NOT USED	2SC2712
Q1426	2SC2712	2SC2712	NOT USED	NOT USED	2SC2712
Q1428	2SC2712	2SC2712	NOT USED	NOT USED	2SC2712
Q1429	2SC2712	2SC2712	NOT USED	NOT USED	2SC2712
R1442	390 :CHIP	390 :CHIP	NOT USED	NOT USED	390 :CHIP
R1443	180 :CHIP	180 :CHIP	NOT USED	NOT USED	180 :CHIP
R1445	2.7k :CHIP	2.7k :CHIP	NOT USED	NOT USED	2.7k :CHIP
R1467	2.7k :CHIP	2.7k :CHIP	NOT USED	NOT USED	2.7k :CHIP
R1468	820 :CHIP	820 :CHIP	NOT USED	NOT USED	2.7k :CHIP
R1470	220k :CHIP	220k :CHIP	NOT USED	NOT USED	220k :CHIP
R1471	150k :CHIP	150k :CHIP	NOT USED	NOT USED	150k :CHIP
R1473	220 :CHIP	220 :CHIP	NOT USED	NOT USED	220 :CHIP
R1474	220 :CHIP	220 :CHIP	NOT USED	NOT USED	220 :CHIP
R1485	2.7k :CHIP	2.7k :CHIP	NOT USED	NOT USED	2.7k :CHIP
R1491	1k :CHIP	1k :CHIP	NOT USED	NOT USED	1k :CHIP
R1492	1k :CHIP	1k :CHIP	NOT USED	NOT USED	1k :CHIP
R1493	2.7k :CHIP	2.7k :CHIP	NOT USED	NOT USED	2.7k :CHIP
R1494	2.7k :CHIP	2.7k :CHIP	NOT USED	NOT USED	2.7k :CHIP
R1496	1k :CHIP	1k :CHIP	NOT USED	NOT USED	1k :CHIP
R1498	1k :CHIP	1k :CHIP	NOT USED	NOT USED	1k :CHIP
R1499	2.7k :CHIP	2.7k :CHIP	NOT USED	NOT USED	1k :CHIP
R1629	2.7k :CHIP	2.7k :CHIP	NOT USED	NOT USED	1k :CHIP
R1630	1k :CHIP	1k :CHIP	NOT USED	NOT USED	1k :CHIP

— H7 BOARD —

— P4 BOARD —
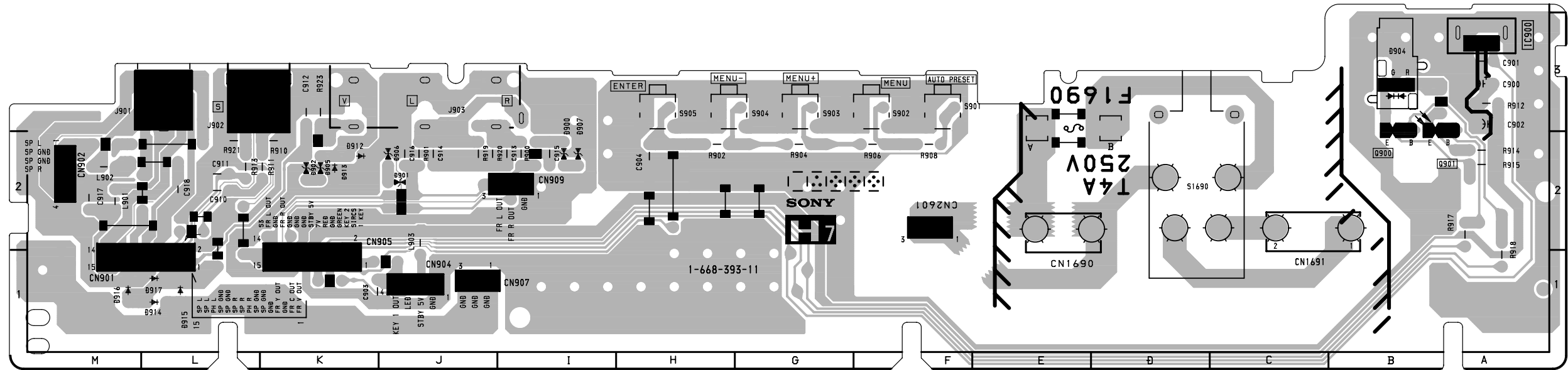
— P3 BOARD (Component Side) —
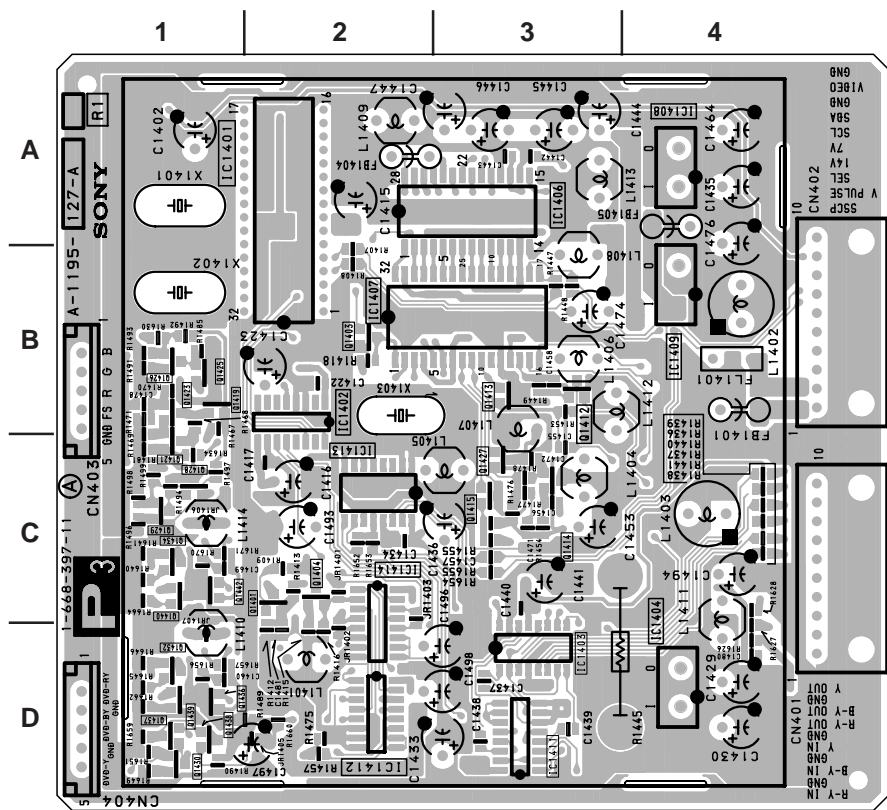
• P3 BOARD SEMICONDUCTOR LOCATION

IC	(Conductor) Side	(Component) Side
IC1401	B–1	
IC1402		B–3
IC1403		C–1
IC1404	D–4	
IC1406		C–4
IC1407		B–3
IC1408	D–1	
IC1409	D–2	
IC1411		C–1
IC1412		B–1
IC1413		B–3
IC1414		B–2

TRANSISTOR	(Conductor) Side	(Component) Side	※
Q1401		B–2	②
Q1402	B–3		①
Q1403		B–3	②
Q1404		B–2	②
Q1405	D–3		①
Q1406	D–3		①
Q1407	D–2		①
Q1408	D–2		①
Q1409	D–3		①
Q1410	D–3		①
Q1411	D–3		①
Q1412		C–3	②
Q1413		C–3	①
Q1414		C–2	②
Q1415		C–2	②
Q1416	C–1		①
Q1418	A–3		①

	(Conductor) Side	(Component) Side	※
Q1419		A–3	②
Q1421		A–2	②
Q1422	A–2		①
Q1423		A–3	②
Q1424	A–2		①
Q1425		A–3	②
Q1426		A–3	②
Q1427		C–2	②
Q1428		A–2	②
Q1429		A–2	②
Q1430		A–1	②
Q1431	A–4		①
Q1432		A–1	②
Q1433	A–4		①
Q1434		A–2	①
Q1433	A–4		①
Q1434		A–2	①
Q1435	A–3		②
Q1436		A–1	②
Q1437		A–1	②
Q1438		A–1	②
Q1439		A–1	②
Q1440		A–2	②
Q1441	A–3		①
Q1442		B–1	②
Q1462	D–4		①
Q1463	D–4		①
Q1464	D–3		①

CRYSTAL	(Conductor) Side	(Component) Side
X1401	A–1	
X1402	A–2	
X1403	B–2	

※: Refer to Terminal name of semiconductors in silk
screen printed circuit (see page 55)

— P3 BOARD (Conductor Side) —
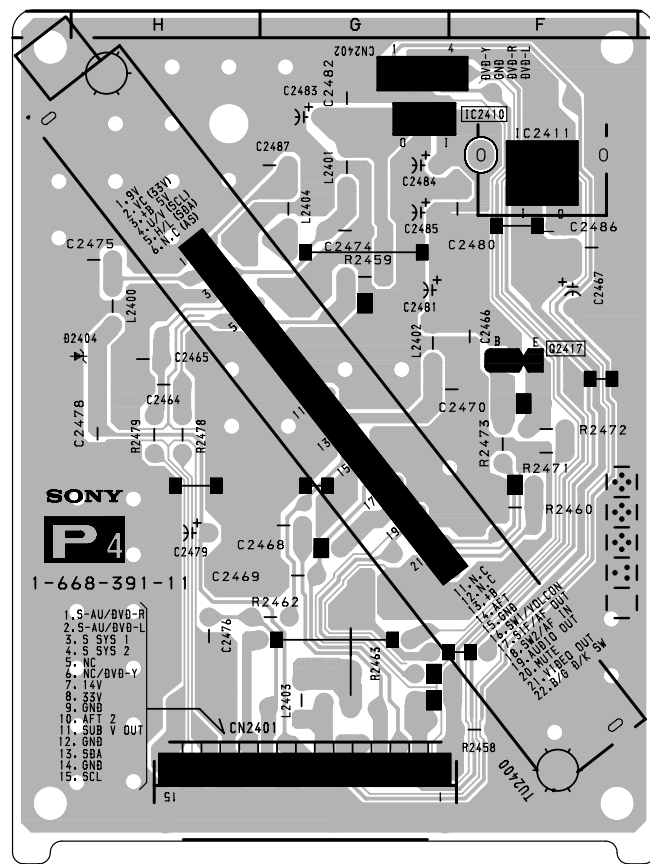
— J BOARD —

• ▨ : Pattern from the side which enables seeing.
• ▨ : Pattern of the rear side.

• ▨ : Pattern from the side which enables seeing.
• ▨ : Pattern of the rear side.

NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.
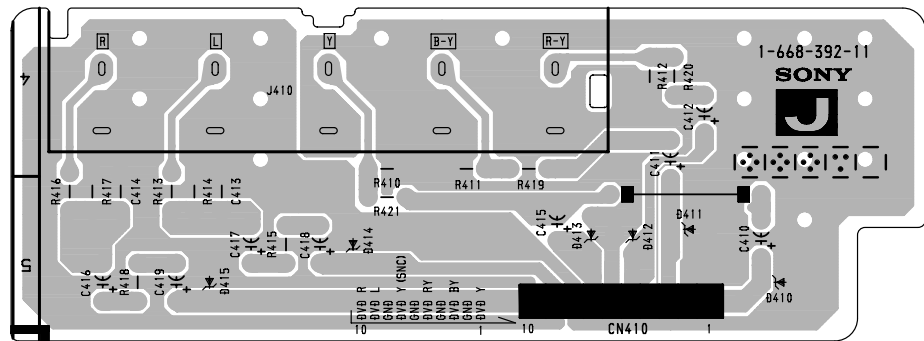
B3 BOARD
Terminal name of semiconductors in silk screen printed circuit (✽)

Ref.	✽
Q3301, Q3302, Q3304-Q3310, Q3312-Q3320	①
D3301, D3302	④

✽: Refer to Terminal name of semiconductors in silk screen printed circuit (see page 55)

V3 BOARD
Terminal name of semiconductors in silk screen printed circuit (✽)

Ref.	✽
Q01, Q03-Q10, Q12	①
D02	⑲
D03, D04	④
D05	③

✽: Refer to Terminal name of semiconductors in silk screen printed circuit (see page 55)

— B3 BOARD —

— V3 BOARD —

— C1 BOARD —

— VM BOARD —

• B3 BOARD IC3301 TDA9170

• B3 BOARD IC3302 AN5342K

• B3 BOARD IC3303 CXA1315M

• B3 BOARD IC3305 LA7016

(KV-EF29M31/M61/M91 ONLY)

V3 (TEXT DECODER)

△ C1 (RGB OUT)

△ B3 (PICTURE BOOSTER, LTI, Y/V SW)

VM (VELOCITY MODULATION)

NECK ASSY

• V3 BOARD WAVEFORMS

① 4.5 Vp-p (12MHz) ② 4.6 Vp-p (V) ③ 4.4 Vp-p (H)

• V3 BOARD DESCRIPTION

REF. NO.	
IC01	TEXT DECODER
IC02	V-P DELAY
Q01	SEL OUT
Q03	RESET OUT
Q04	H-P BUFF
Q05	INVERTER
Q06	B BUFF
Q07	G BUFF
Q08	R BUFF
Q09	BLK MUTE
Q10	INVERTER
Q11	5V REG
Q12	INVERTER

• V3 BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC01	1	0	IC02	9	0.3		B	0
	2	4.4		11	0.9	Q09	C	0
	3	0		12	0.9		B	0
	4	0				Q10	C	0
	5	0	Q01	E	0		B	0
	23	2.1		C	0		E	0
	25	1.8		B	0.7	Q11	C	4.4
	26	2.2	Q03	E	0		C	5.8
	31	1.4		C	0.9		B	5.1
	32	0		B	1.1	Q12	E	0.3
	33	0	Q04	E	1.1		C	0
	34	0		B	0		B	0
	35	0	Q05	C	1.1	Q13	E	5.1
	36	1.1		B	0.3		C	0
	37	0.3	Q06	E	0		B	4.2
	41	2.1		C	0	Q14	C	0
	42	2.2		B	0			
	43	0	Q07	E	0			
	49	4.5		C	0			
	50	4.5	Q08	C	0			

• C1 BOARD DESCRIPTION
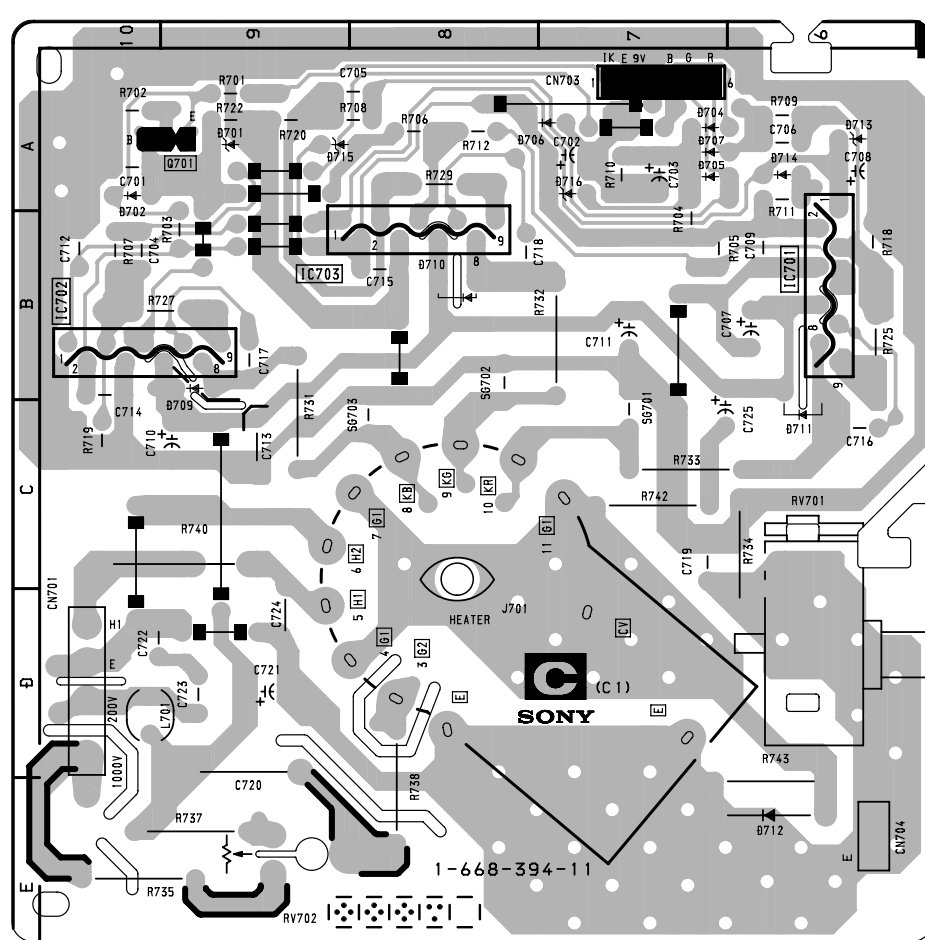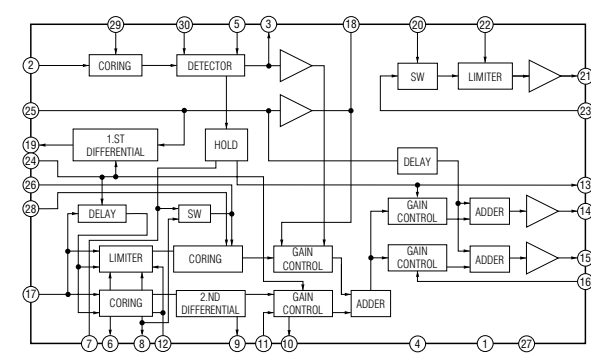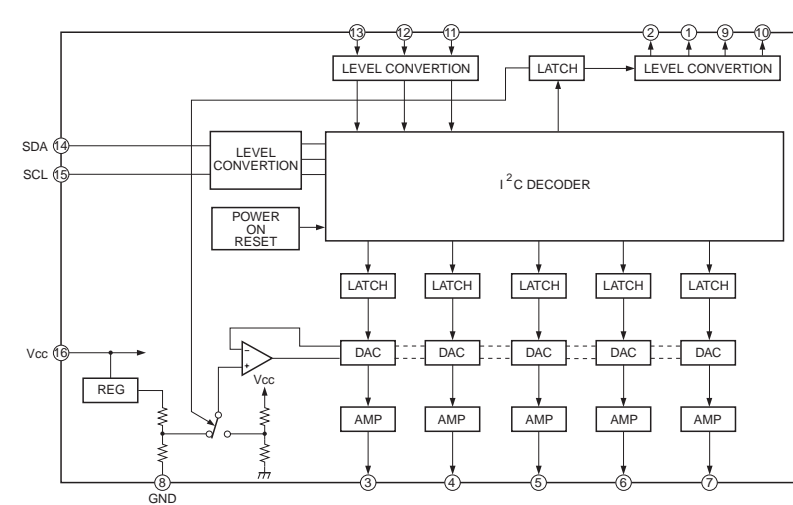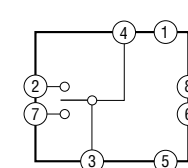
REF. NO.	
IC701	VIDEO AMP
IC702	VIDEO AMP
IC703	VIDEO AMP
Q701	BUFF

• C1 BOARD WAVEFORMS

① 0.8 Vp-p (H) ② 130 Vp-p (H) ③ 0.8 Vp-p (H)
④ 115 Vp-p (H) ⑤ 0.9 Vp-p (H) ⑥ 110 Vp-p (H)
⑦ 24.4 Vp-p (H)

• C1 BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC701	1	3.6	IC702	1	3.6	IC703	1	3.5	Q701	E	5.8
	3	3.5		3	3.5		3	3.5		C	8.1
	5	8.3		5	8.0		5	8.0		B	
	7	140		7	152		7	146			
	8	141		8	154		8	148			
	9	138		9	151		9	144			

• VM BOARD DESCRIPTION

REF. NO.	
Q961	AMP
Q962	AMP
Q963	VM DRIVE 1
Q965	VM DRIVE 2
Q967	BUFF
Q968	BUFF

• VM BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
Q961	E	1.6	Q965	E	0
	B	2.2		C	63.8
Q962	E	1.6		B	0.2
	C	4.3	Q967	E	4.9
	B	2.2		C	5.5
Q963	C	63.8	Q968	E	4.9
	B	134		B	4.3

• VM BOARD WAVEFORM

① 35.6 Vp-p (H)

IC3301 / IC3302 / IC3303 / IC3304 / IC3305 VOLTAGE LIST

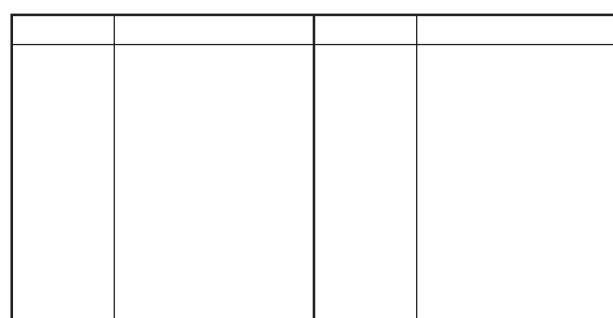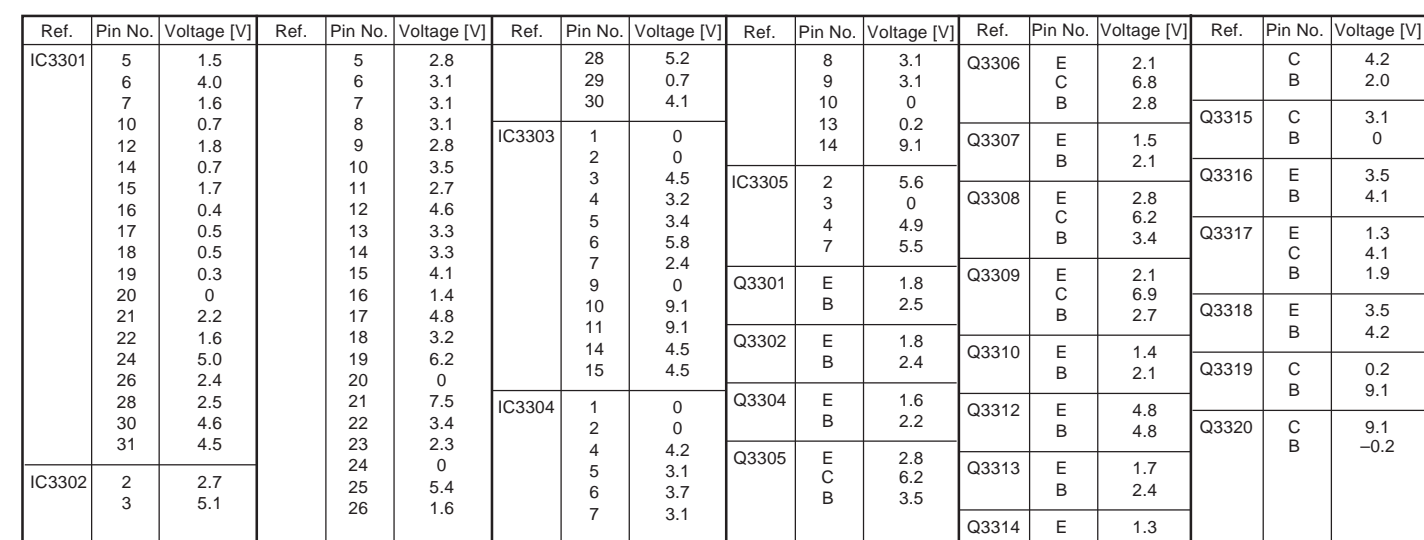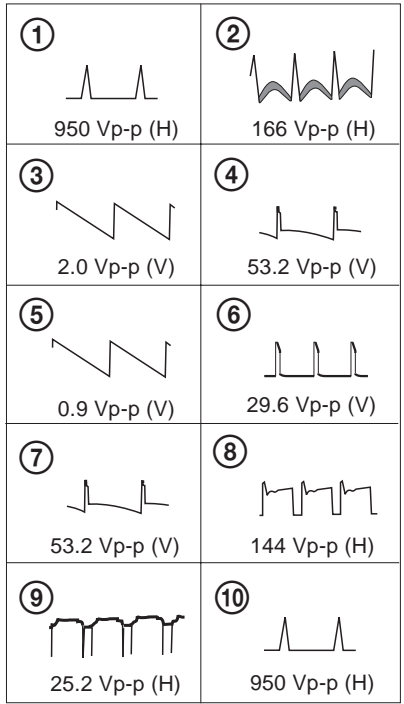| Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC3301	5	1.5		5	2.8		28	5.2	Q3306	E	2.1		8	3.1		C	4.2
	6	4.0		6	3.1		29	0.7		C	6.8		9	3.1		B	2.0
	7	1.6		7	3.1		30	4.1		B	2.8		10	0.2	Q3315	E	
	10	0.7	IC3303	8	3.1				Q3307	E	1.5		13	0.2		C	3.1
	12	1.8		9	2.8	IC3305	2	2.1		C	2.8		14	9.1		B	0
	14	0.7		10	3.5		3	4.5		B	2.1				Q3316	E	3.5
	15	1.7		11	2.7		4	3.2	Q3308	E	5.6					C	2.8
	16	0.4		12	4.6		5	3.4		C	0					B	4.1
	17	0.5		13	3.3		6	5.8		B	4.9				Q3317	E	1.3
	18	0.5		14	3.3		7	2.4	Q3309	E	1.8					C	4.1
	19	0.3		15	4.1	Q3301	E	1.8		C	6.9					B	1.9
	20	0		16	1.4		B	2.5		B	2.7				Q3318	E	3.5
	21	2.2		17	4.8	Q3302	E	1.8	Q3310	E	1.4					C	4.2
	22	1.6		18	3.2		B	2.4		C	1.4					B	
	24	5.0		19	6.2					B	4.5				Q3319	C	9.1
	26	2.5	IC3304	21	7.5	Q3303	E	1.8	Q3312	E	1.6					B	-0.2
	28	4.6		22	3.4		C	2.8		B	2.2				Q3320		9.1
	31	4.5		23	2.3		B	3.1	Q3313	E	1.7						
IC3302	2	2.7		24	0	Q3304	E	1.8		C	2.8						
	3	5.1		25	5.4		B	2.4		B	3.7						
				26	3.1	Q3305	C	2.8	Q3314	E	1.3						
							B	3.5									

IC3305 WAVEFORMS
① 1.9 Vp-p (H) ② 1.5 Vp-p (H) ③ 1.0 Vp-p (H) ④ 1.0 Vp-p (H)
⑤ 1.6 Vp-p (H) ⑥ 1.9 Vp-p (H) ⑦ 1.9 Vp-p (H) ⑧ 1.5 Vp-p (H)
⑨ 2.4 Vp-p (H) ⑩ 2.4 Vp-p (H) ⑪ 1.3 Vp-p (H) ⑫ 1.1 Vp-p (H)

Schematic diagram
← (b3)(c1) (v3)(vm) boards
D (d2)(dh) boards → Schematic diagrams

• DH BOARD IC3805 LA6510

• D BOARD IC1501 TDA8172

Waveforms

① 950 Vp-p (H)	② 166 Vp-p (H)
③ 2.0 Vp-p (V)	④ 53.2 Vp-p (V)
⑤ 0.9 Vp-p (V)	⑥ 29.6 Vp-p (V)
⑦ 53.2 Vp-p (V)	⑧ 144 Vp-p (H)
⑨ 25.2 Vp-p (H)	⑩ 950 Vp-p (H)

• DH BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC3805	1	2.4			
	2	2.7			
	3	2.7	Q3810	E	3.2
	4	2.6		C	2.6
	6	2.5		B	2.6
	7	2.5	Q3811	E	3.2
	8	2.5		C	2.6
IC3807	3	2.5		B	2.6
	4	2.0	Q3812	E	2.6
Q3809	E	2.6		C	2.6
				B	0

• DH BOARD DESCRIPTION

REF. NO.	
IC3805	N/S DRIVE
IC3807	SENSOR UNIT
Q3809	N/S DRIVE MUTE
Q3810	BUFF
Q3811	BUFF
Q3812	N/S DRIVE MUTE

Voltage List (center)

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC601	1	289		B	4.1
	2	0	Q803	C	0
	3	0		B	134
	4	0.8	Q1501	C	0
	5	1.3		B	0.6
	6	0.2	Q1502	E	0.6
	7	1.6		B	0
	8	8.4			
	9		Q1503	E	13.0
IC602	2	64.7		C	0.2
				B	12.5
IC603	1	65.6	Q1800	E	4.1
	2	64.6		B	3.5
	3	0.2			
	4	8.2	Q1802	C	4.1
IC1501	1	1.3		B	0.3
	3	-13.5			
	5	0.4	Q1803	C	6.4
	7	1.3		B	0
IC1800	1	6.4	Q2502	C	68.6
	2	6.4		B	0
	3	6.4			
	4	6.4	Q2503	C	19.3
	6	6.4		B	2.5
	7	6.4			
	8	6.3	Q2505	C	2.5
	9	6.4		B	0
Q600	E	8.4	Q2591	C	137
	C	84.0		B	-0.2
	B	8.2			
Q601	E	70.9	Q2600	C	11.3
	C	10.2		B	0
	B	70.8			
Q602	C	70.8	Q2601	E	-0.3
	B			B	0
Q603	C	0		B	-0.4

• D2 BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC2801	1	6.1	Q2812	E	8.2
	3	6.5		C	8.2
	5	6.6		B	7.6
	6	6.5	Q2813	E	4.4
	7	1.5		C	8.1
IC2803	1	13.2		B	5.0
	O	9.0	Q2814	E	8.7
IC2805	5	4.4		C	0.8
	6	4.5		B	8.2
	7	4.5	Q2815	E	3.5
Q2802	E	2.1		B	0
	B	1.5	Q2817	E	1.4
Q2805	E	1.5		B	0.8
	C	0	Q2818	E	0
	B	1.5		B	-2.5
Q2806	E	1.5	Q2821	E	2.1
	C	8.3		C	7.3
	B	1.5		B	1.8
Q2807	C	42.6	Q2822	C	2.1
	B	-0.2		B	8.1
Q2811	E	2.1	Q2823	E	1.3
	C	7.3		B	2.1
	B	1.8			

• D2 BOARD DESCRIPTION

REF. NO.		REF. NO.		REF. NO.	
IC2801	DF/DQP AMP	Q2807	DF OUT	Q2817	V PULSE
IC2803	9V-REG	Q2811	DQP OUT	Q2818	V PULSE
IC2805	V PARA AMP	Q2812	LIMITTER	Q2821	H PULSE
Q2802	DQP DRIVE	Q2813	V PARA	Q2822	V-DC CONT
Q2805	DF DRIVE	Q2814	V PULSE	Q2823	V-DC CONT
Q2806	DF DRIVE	Q2815	V PULSE		

• D2 BOARD WAVEFORM

① 35.2 Vp-p (H)

• D BOARD SEMICONDUCTOR LOCATION

IC		DIODE		D1506	F–8
IC601	C–5	D601	D–5	D1507	F–7
IC602	E–2	D602	D–4	D1508	F–7
IC603	E–5	D603	C–5	D1509	F–8
IC1501	D–8	D604	D–1	D1510	F–8
IC1800	G–6	D605	G–10	D1511	F–8
IC2504	F–5	D606	D–4	D1803	H–6
		D607	C–1	D1804	H–5
		D608	D–2	D1808	H–7
TRANSISTOR		D609	E–2	D2500	H–3
		D611	E–1	D2501	F–5
Q600	D–5	D612	E–2	D2502	F–4
Q601	E–3	D614	E–3	D2506	D–9
Q602	E–2	D616	D–5	D2507	D–9
Q603	G–1	D618	G–1	D2508	E–10
Q803	F–3	D619	G–10	D2509	F–6
Q1501	F–7	D620	C–2	D2510	G–7
Q1502	H–4	D621	D–6	D2511	G–8
Q1503	E–6	D633	E–2	D2515	G–5
Q1800	G–5	D801	D–8	D2517	F–4
Q1802	G–5	D803	F–4	D2600	A–5
Q1803	G–5	D814	B–7	D2602	B–1
Q2502	F–10	D815	C–8	D2603	A–6
Q2503	F–6	D816	C–7	D2604	B–6
Q2505	F–5	D824	G–8		
Q2591	D–10	D825	F–6	VARIABLE RESISTOR	
Q2600	B–1	D1501	F–7		
Q2601	A–6	D1502	F–6	RV1801	G–5
		D1503	E–8		
		D1505	G–4		

NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

A5 BOARD DESCRIPTION
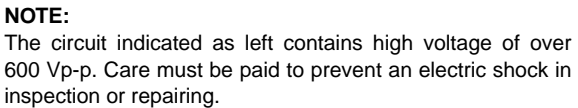
REF. NO.	
IC3001	A/D CONVERTER
IC3002	DOLBY PROCESSOR
IC3003	5V REG
IC3004	RESET
IC3005	AMP
IC3007	AD/DA CONTROL
Q3001	MUTE DRIVE
Q3002	MUTE L
Q3002	MUTE R

A5 BOARD WAVEFORMS

① 6.0 Vp-p (16.9344MHz)

② 4.2 Vp-p (24.576MHz)
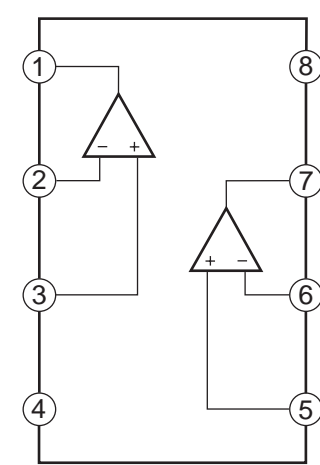
A5 BOARD IC3005 NJM4558M-T2

A5 BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC3001	1	2.5		31	5.0	16	3.5		45	5.0	IC3005	1	4.5
	2	0		32	5.0	17	3.0		47	0		2	4.5
	5	2.8		33	5.0	19	3.0		48	4.9		3	4.5
	6	2.5		39	2.5	20	2.5		49	4.3		5	4.5
	7	5.0		40	2.5	21	2.5		50	4.5		6	4.5
	8	3.2		41	2.8	22	2.5		51	4.9		7	4.7
	9	3.9		42	2.4	23	2.5		53	4.9	IC3007	1	5.0
	12	2.1		43	3.8	24	2.5		54	5.0		9	5.0
	13	2.5		44	2.5	26	2.5		55	4.9		10	0
	14	3.0				27	2.5		56	5.0		14	4.5
	16	5.0	IC3002	1	5.0	29	2.5		57	5.0		15	4.5
	17	2.4		2	5.0	30	2.5		58	5.0	Q3001	C	-0.6
	18	2.0		3	5.0	32	2.0		59	5.0		B	0
	19	5.0		6	5.0	33	5.0		60	0	Q3002	C	0
	22	5.0		7	5.0	35	5.0	IC3003	1	9.0		B	-0.6
	24	5.0		8	5.0	36	5.0		O	5.0	Q3003	C	0
	26	5.0		9	5.0	37	0	IC3004	1	5.0		B	-0.6
	28	5.0		10	5.0	39	5.0		2	GND			
	29	5.0		11	5.0	42	5.0						
	30	0		15	5.0	43	4.9						
						44	4.9						

⚠ A5 (AUDIO PROCESS)

B-SS6580<CH >-A5.

⚠ S1 (AUDIO PROCESS)

B-SS6580<CH >-S1.

(KV-EF29M90 ONLY)

⚠ A3 (SOUND DECODER)

B-SS6580<CH >-A3.

S1 BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Pin No.	Voltage [V]	Pin No.	Voltage [V]	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC2201	1	0.2		15	4.5	10	5.7	20	5.7	30	5.7		3	7.0		C	11.5	Q2205	E	11.8
	2	0.2	IC2208	1	5.7	11	5.7	21	5.7				5	7.0		B	5.3		C	11.8
	3	0.5		3	5.7	12	5.7	22	5.7	IC2213	1	5.8		6	7.0	Q2203	S	5.6		B	11.2
	4	4.6		4	5.7	13	5.7	23	5.7		2	5.8		7	7.0		D	5.3	Q2206	E	0
	5	0.4		5	5.7	14	5.7	24	5.7		3	5.8	Q2201	E	4.7		G	0.8		C	0
	6	0.4		6	5.7	15	5.7	25	5.7		5	5.8		C	11.5	Q2204	S	5.7		B	0.7
	7	8.6		7	5.7	16	6.4	26	5.7		6	5.8		B	5.2		D	5.2			
	9	3.7		8	5.7	17	6.0	27	5.7		7	5.8	Q2202	E	4.7		G	0.8			
	10	8.3		9	5.7	18	5.7	28	5.7	IC2214	1	7.0									
	14	4.5				19	5.7	29	5.7		2	7.0									

A3 BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]	Pin No.	Voltage [V]	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC1330	9	4.4	40	6.5	52	3.9		62	2.5	Q1331	E	2.0	Q1334	E	0.9
	10	4.5	41	3.8	53	3.9		63	2.4		B	2.6		C	7.1
	24	4.6	42	3.8	54	2.7	IC1331	I/O	8.4	Q1332	E	2.0		B	1.5
	28	2.9	43	3.9	55	3.9		O	5.1		B	2.6	Q1335	E	6.4
	29	2.7	44	3.9	57	5.1	Q1330	E	*	Q1333	E	3.5		B	7.1
	31	3.9	46	3.9	58	1.6		C	*		B	4.1			
	32	3.9	47	3.9	59	1.6		B	*						
	38	7.4	49	3.9	60	0									
	39	8.3	50	3.9											

A3 BOARD DESCRIPTION

REF. NO.	
IC1330	SOUND DECODER
IC1331	5V REG
Q1330	BUFF
Q1331	BUFF
Q1332	BUFF
Q1333	AMP
Q1334	BUFF
Q1335	BUFF

A3 BOARD WAVEFORMS

① 3.2 Vp-p (18.432MHz)

— A3 BOARD —

S1 BOARD
Terminal name of semiconductors
in silk screen printed circuit (∗)

Ref.	∗
Q2201, Q2202, Q2205-Q2207	①

∗: Refer to Terminal name of
   semiconductors in silk screen
   printed circuit (see page 55)
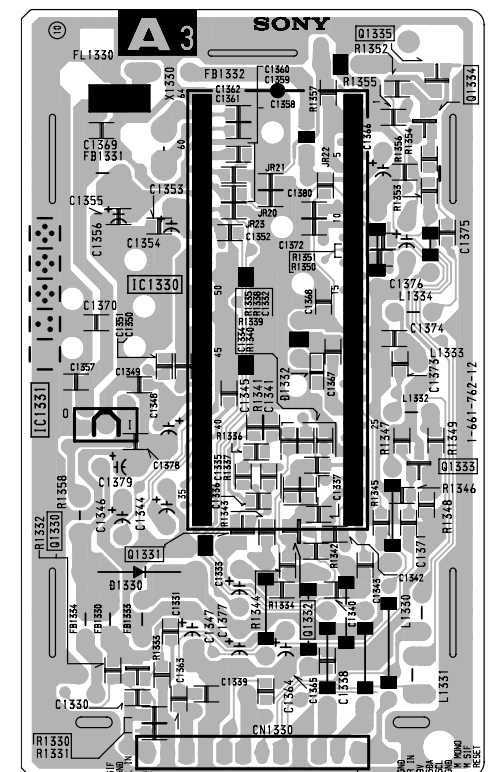
A3 BOARD
Terminal name of semiconductors
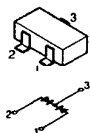**in silk screen printed circuit (∗)**

Ref.	∗
D1332	③
Q1330-Q1335	①

∗: Refer to Terminal name of
   semiconductors in silk screen
   printed circuit (see page 55)

A5 BOARD
Terminal name of semiconductors
in silk screen printed circuit (∗)

Ref.	∗
Q3001-Q3003	①

∗: Refer to Terminal name of
   semiconductors in silk screen
   printed circuit (see page 55)

6-5. SEMICONDUCTORS

[DIODE]

[TRANSISTOR]

DAN202K

ERC06-15S
RU4AM-T3
S3L20UF4
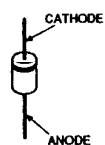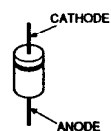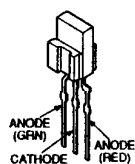
1SS355
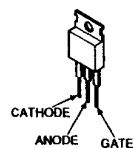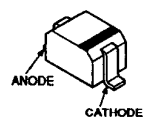
DTA144EK
DTC114EK
DTC144EK
2SA1162-G
2SC2712-YG

2SB733-34
2SC2958
2SD773-34

D1NL20
EGP20G
EL-1Z
GP08D
RGP02-17EL-6433
RGP02-20EL-6394

ERD29-08J

5P6M

DTC144ES

2SC2611
2SC2688-LK
2SC3601-E

MC932
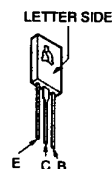
DTD114ES
2SA1175-HFE
2SC2785-HFE

2SC4927-01

D4SB60L

ON3171-R

D5LC20U
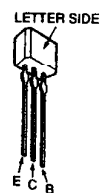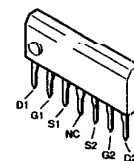
2SA1091-O
2SC2551-O

2SD1640Q, R

RD6.8M-B
RD8.2M-B1

2SA1315-Y

RD33ES-B2
RD39ES-B2
RD4.7ES-B2
RD5.1ES-B1
RD5.1ES-B2
RD5.6ES-B1
RD5.6ES-B2
RD7.5ES-B1
RD8.2ES-B2
RD9.1ES-B
RD9.1ES-L

SPB-26MVWF
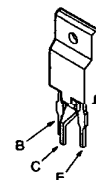
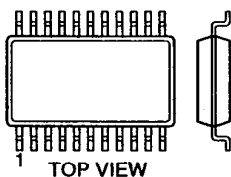**2SA1837**
2SC4793
2SD2394-F

IC

CXA1855S (48PIN)
CXA2050S (64PIN)
CXP85332A-073S (64PIN)
M5216P (8PIN)
ST24C04CB1 (8PIN)
TDA4665T (16PIN)
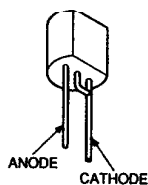TDA8395T (20PIN)
TDA8424 (20PIN)
µPC4558C (8PIN)

TOP VIEW
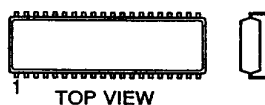
Dual In-line Package
Pin 6 ~ 98

CXA1315M (16PIN)
µPC4558G2 (8PIN)

TOP VIEW

Small Outline L-leaded Package
Pin 8 ~ 98

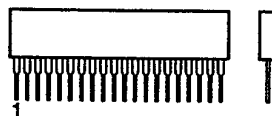µPC574J

ANODE
CATHODE

L78LR05D-MA

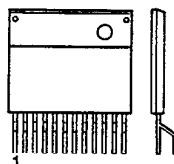PQ09RF2

MC14052BF

SBX1981-11 (3PIN)
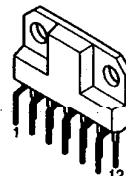
MARKING SIDE VIEW

Single In-line Package
Pin 6 ~ 99

SE-135N

STR-S6708 (9PIN)
STR-S6709 (9PIN)

MARKING SIDE VIEW

Zig-zag In-line Package
Pin 6 ~ 99

TA8200AH

TDA8172

– 62 –

EXPLODED VIEWS

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

7-1. PICTURE TUBE
■: BVTP 4 × 16 7-685-663-71
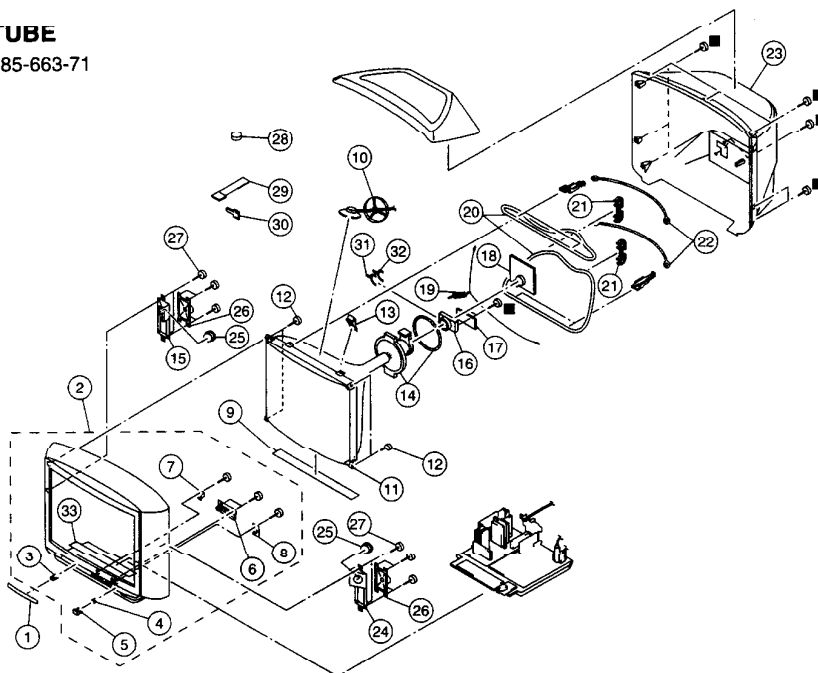
REF. NO.	PART NO.	DESCRIPTION	REMARK
1	4-054-485-21	DOOR, CONTROL (KV-J29MF1)	
	4-054-485-11	DOOR, CONTROL (KV-J29MN2)	
	4-054-485-51	DOOR, CONTROL (KV-J29SN21)	
	4-054-485-41	DOOR, CONTROL (KV-J29SZ2)	
2	X-4033-997-1	BEZNET ASSY (KV-J29MF1)	3-8
	X-4033-928-1	BEZNET ASSY (KV-J29MN2)	3-8
	X-4034-275-1	BEZNET ASSY (KV-J29SN21/SZ2)	3-8,33
3	4-047-464-01	CATCHER, PUSH	
4	4-036-405-11	SPRING, COMPRESSION	
5	4-054-486-01	BUTTON, POWER	
6	4-054-487-01	BUTTON, CONTROL	
7	* 4-054-488-01	GUIDE, LIGHT (R)	
8	* 4-054-489-01	GUIDE, LIGHT (LED)	
9	4-385-725-51	SHEET, BLOTTING (KV-J29MF1/MN2)	
10	* 3-704-372-11	HOLDER, HV CABLE	
11	⚠ 8-733-869-05	PICTURE TUBE (M68KZT71X) (KV-J29MF1/MN2)	
	⚠ 8-733-868-05	PICTURE TUBE (M68K7T71X) (KV-J29SN21/SZ2)	
12	4-046-765-01	SCREW, TAPPING	
13	4-046-600-01	SPACER, DY (KV-J29MF1/MN2)	
	4-046-600-11	SPACER, DY (KV-J29SN21/SZ2)	
14	⚠ 8-451-467-31	DEFLECTION YOKE (Y29GXA2-S) (KV-J29MF1/MN2)	
	⚠ 8-451-467-21	DEFLECTION YOKE (Y29GX2T) (KV-J29SN21/SZ2)	
15	* X-4033-930-1	BRACKET (L) ASSY, SP	

REF. NO.	PART NO.	DESCRIPTION	REMARK
16	1-452-762-31	NECK ASSEMBLY NA294	
17	* A-1342-329-A	MOUNTED PCB (VAR), VM (KV-J29MF1/MN2)	
	* A-1342-332-A	VM MOUNTED PCB (VAR) (KV-J29SN21/SZ2)	
18	* A-1331-649-A	MOUNTED PCB (VAR), C2 (KV-J29MF1/MN2)	
	* A-1331-604-A	C2 MOUNTED PCB (VAR) (KV-J29SN21/SZ2)	
19	4-369-318-41	SPRING, TENSION (KV-J29MF1/MN2)	
	4-369-318-61	SPRING, TENSION (KV-J29SN21/SZ2)	
20	⚠ 1-403-672-31	COIL, DEMAGNETIZATION (KV-J29MF1/MN2)	
	⚠ 1-403-672-11	COIL, DEMAGNETIZATION (KV-J29SN21/SZ2)	
21	* 4-054-297-11	HOLDER, DEGAUSSING COIL (KV-J29MF1/MN2)	
	* 4-054-297-01	HOLDER, DGC (KV-J29SN21/SZ2)	
22	* 4-043-827-11	BAND, DEGAUSSING COIL (KV-J29MF1/MN2)	
	1-900-700-10	DGC BAND (KV-J29SN21/SZ2)	
23	4-054-484-01	COVER, REAR	
24	* X-4033-931-1	BRACKET (R) ASSY, SP	
25	1-505-489-11	SPEAKER (5CM)	
26	1-505-503-11	SPEAKER (15X6.5CM)	
27	4-302-404-03	SCREW (WASHER HEAD) (+P 4X16)	
28	1-452-032-00	MAGNET,DISC	
29	4-051-734-21	PIECE B(120), CONV. CORRECT	
30	4-034-272-01	PLATE, CORRECTION, TLV	
	4-034-272-11	PLATE, CORRECTION, TLV	
31	1-452-278-32	MAGNET, PURITY	
32	1-452-278-22	MAGNET, PURITY	
33	4-058-025-01	CUSHION (29) BLOTTING (KV-J29SN21/SZ2)	

7-2. CHASSIS
●: BVTP 3 × 12 7-685-648-79
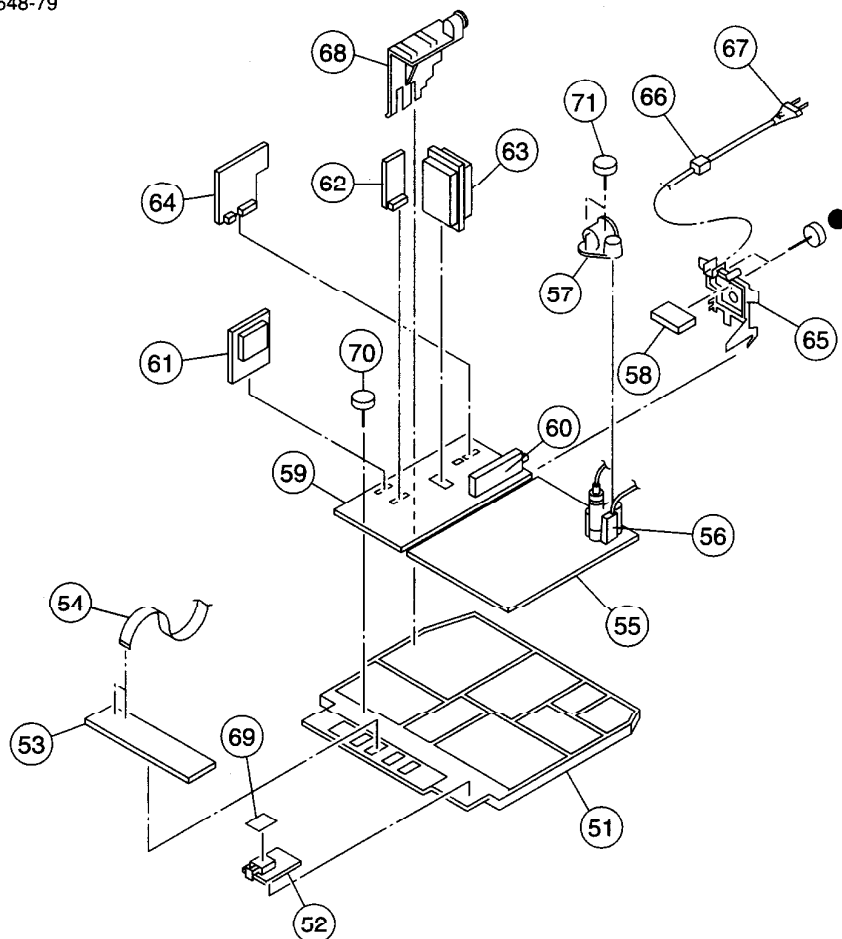
REF. NO.	PART NO.	DESCRIPTION	REMARK
51	* 4-055-140-01	BRACKET, MAIN	
52	* A-1241-286-A	MOUNTED PCB, F1 (KV-J29MF1/MN2)	
	* A-1241-253-A	F1 MOUNTED PCB (KV-J29SN21/SZ2)	
53	* A-1372-324-A	MOUNTED PCB, H3 (KV-J29MF1/MN2)	
	* A-1372-257-A	H3 MOUNTED PCB (KV-J29SN21/SZ2)	
54	1-777-353-11	CABLE, FLAT	
55	* A-1346-601-A	COMPLETE PCB, D (KV-J29MF1)	
	* A-1346-600-A	COMPLETE PCB, D (KV-J29MN2)	
	* A-1346-577-A	D COMPLETE PCB (KV-J29SN21/SZ2)	
56	⚠ 1-453-227-21	TRANSFORMER ASSY, FLYBACK (NX-4002/M3I4)	
57	* 4-056-796-01	HOLDER, FBT (KV-J29MF1/MN2)	
	* 4-055-139-01	HOLDER, FBT (KV-J29SN21/SZ2)	
58	* A-1380-538-A	MOUNTED PCB, K1 (KV-J29MN2)	
	* A-1380-526-A	K1 MOUNTED PCB (KV-J29SN21/SZ2)	
59	* A-1298-060-A	COMPLETE PCB, A (KV-J29MF1)	
	* A-1298-056-A	COMPLETE PCB, A (KV-J29MN2)	
	* A-1298-066-A	COMPLETE PCB, A (KV-J29SN21)	
	* A-1298-045-A	COMPLETE PCB, A (KV-J29SZ2)	
60	8-598-374-00	TUNER (BTV-FG431) (KV-J29MF1)	
	8-598-375-00	TUNER (BTV-FG441) (KV-J29MN2/SN21/SZ2)	

REF. NO.	PART NO.	DESCRIPTION	REMARK
61	* A-1347-118-A	V1 COMPLETE PCB (KV-J29SN21)	
62	* A-1390-716-A	MOUNTED PCB (VAR), S (KV-J29MF1/MN2)	
	* A-1390-618-A	S MOUNTED PCB (VAR) (KV-J29SN21/SZ2)	
63	* A-1298-033-A	COMPLETE PCB, A3 (KV-J29MN2)	
	* A-1297-860-A	A3 COMPLETE PCB (KV-J29SN21/SZ2)	
64	* A-1380-537-A	MOUNTED PCB, K (KV-J29MN2)	
	* A-1380-527-A	K MOUNTED PCB (KV-J29SN21/SZ2)	
65	4-055-143-11	BRACKET, TERMINAL (KV-J29MF1)	
	4-055-143-01	BRACKET, TERMINAL (KV-J29MN2/SN21/SZ2)	
66	⚠ 4-022-115-21	HOLDER, AC CORD (KV-J29MF1/MN2)	
	⚠ 4-022-115-00	HOLDER, AC CORD (KV-J29SN21/SZ2)	
67	⚠ 1-575-023-31	CORD, POWER (WITH CONNECTOR) 6A/250V (KV-J29MF1/MN2)	
	⚠ 1-574-358-51	CORD, POWER (WITH CONNECTOR) 7.5A/250V (KV-J29SN21/SZ2)	
68	* 4-056-795-01	HOLDER, ASSY PCB (KV-J29MF1/MN2)	
	* 4-055-142-01	HOLDER, ASSY PCB (KV-J29SN21/SZ2)	
69	* 4-055-447-11	SHEET, INSULATING (KV-J29MF1/MN2)	
	* 4-055-447-01	SHEET, INSULATING (KV-J29SN21/SZ2)	
70	4-046-797-01	SCREW (3X12), (+)BVTAP	
71	4-302-428-03	SCREW (WASHER HEAD) (+P 3X12)	

7-3. 3D SPEAKER (EXCEPT FOR KV-J29MF1)

■: BVTP 4 × 16 7-685-663-71
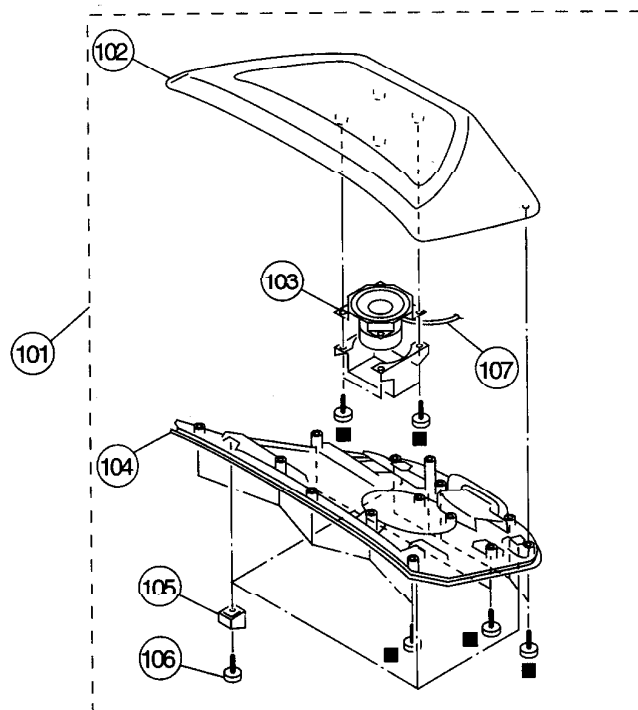
REF. NO.	PART NO.	DESCRIPTION	REMARK
101	A-1500-977-A	BOX ASSY (3D), SPEAKER	102-107
102	4-054-496-01	COVER, TOP	
103	1-544-363-11	SPEAKER (10CM)	
104	4-054-497-01	COVER, BOTTOM	
105	4-037-244-01	FOOT	
106	4-302-428-03	SCREW (WASHER HEAD) (+P 3X12)	
107	1-900-224-27	LEAD ASSY, SPEAKER	